NASA Contractor Report 159273-2 Users Manual—Appendix H

NASA-CR-159273-2 19800024183

Thermal Radiation Analysis System TRASYS II

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MARTIN MARIETTA CORPORATION Denver, Colorado 80201

CONTRACT NAS1-15683 JUNE 1980

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APPENDIX H

AVAILABLE UNDER SEPARATE COVER AS NASA CR-159273-2

Sample Problems.

CONTENTS	Page
Sample Case 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL Executions. Original (non-restart) run.	
INPUT OUTPUT PLOTS	H-2 H-19 H-53
Sample Case 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT Executions. (Restart from Sample 1, with source editing.)	
INPUT OUTPUT PLOTS	H-57 H-75 H-150
Sample Case 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN Executions. (Restart from Sample 2, with source editing.)	
INPUT OUTPUT	H-162 H-179
Sample Case 4 - FFCAL/GBCAL/RCCAL Executions. Shows use of MESS and ERN nodes and multi-configuration operations. (Restart, with source editing.)	
INPUT OUTPUT	H-234 H-255
Sample Case 5 - FFCAL/RBCAL/GBCAL/RKCAL/DRCAL/AQCAL/QOCAL Executions. Shows specular-diffuse radiation model results. Restart from a previous Case 5 run with a logic error in operations data. (No source editing.)	
INPUT OUTPUT	H-277 H-297
Sample Case 6 - Comparison of FFCAL and NFCAL form factor results.	
INPUT OUTPUT	H-355 H-372

TITTTTTTTTT

TTT

TTTTTTT

I I TRASYS

RRRRRRRRR RRRRRRRRRR RRR RRR RRR RRR RRRRRRRRR RRR RRR RRR RRR RRR RRR

RRRR

RRR

AAAAAAA AAAAAAAA AAAAAAAAAA AAA AAA AAA AAA AAAAAAAAA AAA AAA AAA AAA AAA AAA AAAAA AAAAA

NASA/MARTIN MARIETTA
THERMAL RADIATION ANALYSIS SYSTEM
CDC6500/SCOPE 3.4

SSSSSSSSS SSSSSSSSSS SSS SS SSS SSSSSSSSS

SSS SSS SSSSSSSSSS SSSSSSSSS

YYYY YYYY YYY YYY YYY YYY YYY YYY YYYYY YYY YYY YYY YYYYYY

SSSSSSSSS SSSSSSSSSS SSS SS SSS SSSSSSSSS SSS SS SSS

PRE-PROCESSOR EXECUTION

VERSION.MODIFICATION ... SC2E1
MODIFICATION DATE 01/21/77

DATE 05/04/77 TIME 11.07.23. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE 1.

MODEL = N/A

OPTION AND TITLE DATA BLOCKS

CARD ORGIN

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

INPUT

HEADER OPTIONS DATA

INPUT

TITLE SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

INPUT INPUT MODEL = SAMPLE RSO = RSTSAM

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PAGE :

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

DATE 05/04/77 TIME 11.07.24.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL = SAMPLE TRASYS INFORMATION TO USER

OPTIONS DATA -INFO- OPTIONS ARE ...

INFO = BUILD BUILD EXECUTION CARD

INFO = INFO HOW TO USE TRASYS INFO FILE

INFO = ITRCPP PREPROCESSOR TRACE FLAGS

INFO = RKCAL INFO. ON DELETION OF THE RKCAL LINK

INFO = STEP INFO. ON USING STEP CARDS

INFO = CCARDS INFO. ON TRASYS CONTROL CARDS

END OF TRASYS INFORMATION FILE

++NOTE++ DATA ORIGINATION FROM INPUT FILE, NO -RSI- SOURCE EDITING

DATE 05/04/77 TIME 11.07.25. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

MODEL = SAMPLE MODEL HISTORY

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL NAME SAMPLE

MODEL TITLE SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MOD RUN JOB RUN RUN RSI RSO CMERG EMERG BCDOU TRAJ RTI RTO USER1 USER2 LABEL NUMBER DATA TIME TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE

AA RGEX153 05/04/77 11.07.24 RSTSAM

DATE 05/04/77 TIME 11.07.25. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

SOURCE DATA EDIT DIRECTIVES

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL CARD ORGIN

PAGE

Ε.

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

NBUT		CARD ORGIN	123458	378 1 2 345678	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO.	LABEL
INPUT C		INPUT				ΔΔ
INPUT C		INPUT				
INPUT C		INPUT	C	THIS SURFACE		
INPUT C		INPUT				
INPUT S SURIN S S SURIN S S SURIN S S S S S S S S S						
INPUT BCS BOXINR 7 AA INPUT TYPE = RECT 9 AA INPUT PROP = 0.9,0.9 110 AA INPUT PROP = 0.10,0.0.0 0.0 12 AA INPUT PROP = 0.10,0.0.0 13 AA INPUT P3 = 1.0,1.0.0 14 AA INPUT P3 = 1.0,1.0.0 16 AA INPUT P3 = 1.0,1.0.0 16 AA INPUT P3 = 1.0,1.0.0 16 AA INPUT S SUREN = 2 16 AA INPUT ACTIVE = BOTTOM 18 AA INPUT ACTIVE = BOTTOM 18 AA INPUT PROP = 0.9,0.9 19 AA INPUT PROP = 0.9,0.9 19 AA INPUT P1 = 1.0,1.0.10 20 AA INPUT RUPE = RECT 24 AA INPUT P1 = 1.0,0.0 22 AA INPUT P1 = 1.0,0.0 22 AA INPUT PROP = 0.9,0.9 27 AA INPUT P2 = RECT 24 AA INPUT P2 = RECT 25 AA INPUT P2 = 0.0,0.0 0.0 INPUT P3 = 0.0,1.0 0.0 INPUT P4 = 1.0,1.0 0.0 INPUT P5 = 0.9,0.9 INPUT P5 = 0.9,0.9 INPUT P6 = RECT 33 AA INPUT P7 = 0.9,0.9 INPUT R REFROE 1 BCS BOXINR INREFIERDE PLANE 1000 40 AA INPUT C			-	UNULU:		
INPUT S SURFN = 1			-	ROXIND	7	
INPUT						
INPUT			•			
INPUT		-				
INPUT					The second se	
INPUT				_	· · · · · · · · · · · · · · · · · · ·	
IMPUT					• • • • • • • • • • • • • • • • • • • •	
IMPUT S SURN 2 15 AA AA AA AA AA AA IMPUT S SURN 2 AA AA AA AA AA AA AA					· · · · · · · · · · · · · · · · · · ·	
IMPUT S SURFN 2		=			, , , , , , , , , , , , , , , , , , ,	
ANDUT TYPE = RECT			c	-		
INPUT ACTIVE			3		•	
INPUT PROP = 0.9.0.9 INPUT P1 = 1.0. 1.0 1.0 INPUT P1 = 1.0. 1.0. 1.0 INPUT P2 = 1.0. 1.0. 0.0 INPUT P3 = 0.0. 1.0. 0.0 INPUT P5 = RECT P5 AA INPUT P6 = RECT P6 AA INPUT P7 = 0.9.0.9 INPUT P7 = 0.9.0.9 INPUT P7 = 0.9.0.9 INPUT P7 = 0.0.0.0.0 1.0 INPUT P7 = 0.0.0.0 0.0 INPUT P7 = 0.0.0 0.0 INPUT P8 = RECT P7				· · · · —	TEET	
INPUT				-	·	
TINDIT						
INPUT					and the state of the	
INPUT COM	Ħ					
INPUT S SURFN						
INPUT TYPE = RECT	-		•			
INPUT ACTIVE = TOD ACTIVE = TOD INPUT PROP = 0.9,0.9 INPUT PROP = 0.0,0.0.0 INPUT P1 = 0.0,0.0.0 INPUT P2 = 0.0,0.0.0 INPUT P3 = 0.0,1.0 COM = * INNER RIGHT BACK * INPUT CCM = * INNER RIGHT BACK * INPUT S SURFN = 4 INPUT ACTIVE = TOP ACTIVE =			5			AA
INPUT PROP = 0.9,0.9 INPUT PI = 0.0,0.0.1.0 P1 = 0.0,0.0.0.1.0 R P1 = 0.0,0.0.0.0 R P2 = 0.0,0.0.0.0 R P3 = 0.0,1.0,0.0 R P3 = 0.0,1.0,0.0 R R R FFNO = 0.9,0.9 AA AA AA AA AA AA AA AA INPUT A P3 = 0.0,1.0,0.0 AA INPUT BC SURFN = 4 INPUT TYPE = RECT AA AA INPUT A ACTIVE = TOP ACTIVE = TOP AA INPUT A PROP = 0.9,0.9 AA INPUT A PROP = 0.9,0.9 AA INPUT BCS BOXINL, IMGBCS=BOXINR, NINC=10, IREFS=1000 AA INPUT BCS BOXINL, IMGBCS=BOXINR, NINC=10, IREFS=1000 AA INPUT CTHE FOREGOING CARD IMAGES BCS BOXINT IN REFERENCE PLANE 1000 AA INPUT CTHIS MANNER TO FACILITATE THE INPUT OF SAMPLE CASE 4 TO SHOW AA INPUT CTHE USE OF "MESS" AND "ERN" NODES. IMAGING SURFACE 1) BCS (BO), GENERATING SURFACE (11) BCS (BO) IMAGING SURFACE 2) BCS (BO), GENERATING SURFACE (12) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (13) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) AA AA AA AA AA AA AA AA AA					= -	AA
INPUT P1 = 0.0, 0.0, 1.0						AA
INPUT						
INPUT						AA
INPUT						AA
INPUT S SURFN = 4 INPUT TYPE = RECT TYPE = RECT TYPE = RECT 33 AA INPUT ACTIVE = TOP 34 AA INPUT PROP = 0.9,0.9 35 AA INPUT PROP = 0.9,0.9 36 AA INPUT CCM = **INNER RIGHT BOTTOM ** INPUT CCM = **INNER RIGHT BOT				· •		AA
INPUT			_	-	• •	AA
INPUT			5		▼•	AA
INPUT PROP					·	AA
INPUT					=:	AA
INPUT		_			·	AA
INPUT						AA
INPUT C						AA
INPUT				BOXINL, IMGBO	· · · · · · · · · · · · · · · · · · ·	AA
INPUT CTO CREATE BCS BOXINL. THE INTERIOR OF THE BOX WAS INPUT IN 41 AA INPUT CTHIS MANNER TO FACILITATE THE INPUT OF SAMPLE CASE 4 TO SHOW 42 AA INPUT CTHE USE OF "MESS" AND "ERN" NODES. 43 AA INPUT C IMAGING SURFACE 1) BCS (BO), GENERATING SURFACE (11) BCS (BO) IMAGING SURFACE 2) BCS (BO), GENERATING SURFACE (12) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (13) BCS (BO) IMAGING SURFACE 4) BCS (BO), GENERATING SURFACE (14) BCS (BO) INPUT R REFNO = 1000 45 AA INPUT P1 = 1.0, 0.0, 1.0			-			AA
INPUT CTHIS MANNER TO FACILITATE THE INPUT OF SAMPLE CASE 4 TO SHOW INPUT CTHE USE OF "MESS" AND "ERN" NODES. IMAGING SURFACE 1) BCS (BO), GENERATING SURFACE (11) BCS (BO) IMAGING SURFACE 2) BCS (BO), GENERATING SURFACE (12) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (13) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (14) BCS (BO) IMAGING SURFACE 4) BCS (BO), GENERATING SURFACE (14) BCS (BO) INPUT R REFNO = 1000 P1 = 1.0, 0.0, 1.0					and the state of t	AA
INPUT CTHE USE OF "MESS" AND "ERN" NODES. IMAGING SURFACE 1) BCS (BD), GENERATING SURFACE (11) BCS (BD) IMAGING SURFACE 2) BCS (BD), GENERATING SURFACE (12) BCS (BD) IMAGING SURFACE 3) BCS (BD), GENERATING SURFACE (13) BCS (BD) IMAGING SURFACE 4) BCS (BD), GENERATING SURFACE (14) BCS (BD) INPUT R REFNO = 1000 INPUT R REFNO = 1000 AA AA AA AA AA AA AA AA AA					_ · · · · · · · · · · · · · · · · · · ·	AA
INPUT C						AA
IMAGING SURFACE 1) BCS (BD), GENERATING SURFACE (11) BCS (BD) IMAGING SURFACE 2) BCS (BD), GENERATING SURFACE (12) BCS (BD) IMAGING SURFACE 3) BCS (BD), GENERATING SURFACE (13) BCS (BD) IMAGING SURFACE 4) BCS (BD), GENERATING SURFACE (14) BCS (BD) INPUT R REFNO = 1000 INPUT P1 = 1.0, 0.0, 1.0 45 AA AA				THE USE OF "N	MESS" AND "ERN" NODES. 43	AA
IMAGING SURFACE 2) BCS (BO), GENERATING SURFACE (12) BCS (BO) IMAGING SURFACE 3) BCS (BO), GENERATING SURFACE (13) BCS (BO) IMAGING SURFACE 4) BCS (BO), GENERATING SURFACE (14) BCS (BO) INPUT R REFNO = 1000 INPUT P1 = 1.0, 0.0, 1.0 45 AA INPUT P1 = 1.0, 0.0, 1.0		INPUT	C,			AA
IMAGING SURFACE 3) BCS (BD), GENERATING SURFACE (13) BCS (BD) IMAGING SURFACE 4) BCS (BD), GENERATING SURFACE (14) BCS (BD) INPUT R REFNO = 1000 INPUT P1 = 1.0, 0.0, 1.0 45 AA INPUT P1 = 1.0, 0.0, 1.0					· · · · · · · · · · · · · · · · · · ·	
IMAGING SURFACE 4) BCS (BO), GENERATING SURFACE (14) BCS (BO) INPUT R REFNO = 1000 45 AA INPUT P1 = 1.0, 0.0, 1.0 46 AA					· · · · · · · · · · · · · · · · · · ·	
INPUT R REFNO = 1000 45 AA INPUT P1 = 1.0, 0.0, 1.0 46 AA						
INPUT P1 = 1.0, 0.0, 1.0 46 AA			_			
TABLE TO THE TABLE			R		· · · · · · · · · · · · · · · · · · ·	AA
INPUT P2 = 1.0, 0.0, 0.0 47 AA					· · · · · · · · · · · · · · · · · · ·	AA
		INPUT		P2	= 1.0, C.O, 0.0 47	AA

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

	CARD ORGIN	123456	578 1 2 34567 8	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT	NO. OLD EDIT NO.	LABEL
	INPUT		Р3	= 0.0, 0.0, 0.0	48	AA
	INPUT		COM	= * IMAGING PLANE *	49	AA
	INPUT	BCS	LIDINR		50	AA
	INPUT	S	SURFN	= 5	5 1	AA
	INPUT	Ū	TYPE	= RECT	52	AA
	INPUT		ACTIVE	= BOTTOM	53	AA
	INPUT		PROP	= 0.9,0.9	54	AA
	_		P1	= 1.0, 1.0, 0.0	55	AA
	INPUT		COM	= * INNER RIGHT LID *	56	AA
	INPUT	•	·	= 15	57	AA
	INPUT	S	SURFN	= 5	58	AA
	INPUT		IMAGSF		59	AA
	INPUT		IREFSF	= 1000	60	AA
	INPUT		COM	= * INNER LEFT LID *	61	AA
	INPUT	BCS	BOXOUT		62	AA
	INPUT	S	SURFN	= 21	63	AA
	TNPUT		TYPE	= BOX5	64	ĀĀ
	INPUT		ACTIVE	= OUT	= :	ÄÄ
	INPUT		SHADE	= NO	65	AA
	INPUT		PROP	= 0.2,0.9	66	
	INPUT		P1	= 1.01,-1.01, 1.01	67	AA
	INPUT		P2	= 1.01, 1.01, 1.01	68	AA
Ŧ	INPUT		P3	=-0.01, 1.01, 1.01	69	AA
ထ	INPUT		P4	=-0.01, 1.01,-0.01	70	AA
	INPUT		COM	= * OUTER SURFACES *	71	AA
	INPUT	BCS	LIDOUT		72	AA
	INPUT	S	SURFN	= 26	73	AA
	INPUT	•	TYPE	= RECT	74	AA
	INPUT		ACTIVE	= TOP	75	AA
	INPUT		SHADE	= NC	76	AA
	INPUT		PROP	= 0.2,0.9	77	AA
			P1	= 1.01,-1.01, 0.01	78	AA
	INPUT			= 1.01, 1.01, 0.01	79	AA
	INPUT		P2		80	AA
	INPUT		P3	=-0.01, 1.01, 0.01	81	AA
	INPUT	_	COM	= * OUTER SURFACE OF LID *	82	AA
	INPUT	C		TOOLS (MESSO AND MESSI) ARE ACTIVATED IN SAMPLE	83	AA
	INPUT			BCS'S (MESSR AND MESSL) ARE ACTIVATED IN SAMPLE	84	AA
	INPUT		-CASE 4 ONLY.		85	AA
	INPUT	С			86	AA
	INPUT	BCS	MESSR		87	AA
	INPUT	S	SURFN	= 101		AA
	INPUT		TYPE	= RECT	88	AA
	INPUT		ACTIVE	= TOP	89	
	INPUT		PROP	= 1.0,1.0	90	AA
	INPUT		P1	= 1.0, 0.0, 1.0	91	AA
	INPUT		P2	= 1.0, 0.0, 0.0	92	AA
	INPUT		P3	= 0.0, 0.0, 0.0	93	AA
			COM	= * PRIMARY MESS NODE, RIGHT SIDE *	94	AA
	INPUT	BCS	MESSL		95	AA
	INPUT			= 111	96	AA
	INPUT	S	SURFN	≠ RECT	97	AA
	INPUT		TYPE		98	AA
	INPUT		ACTIVE	= BOTTOM	= =:	

DATE 05/04/77 TIME 11.07.32. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION PAGE MODEL = SAMPLE SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN SURFACE DATA INPUT BLOCK CARD ORGIN 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL INPUT PROP = 1.0.1.099 AA INPUT Р1 = 1.0, 0.0, 1.0 AA 100 INPUT P2 = 1.0, 0.0, 0.0AA 101 INPUT рз = 0.0, 0.0, 0.0102 AA INPUT COM = * PRIMARY MESS NODE, LEFT SIDE * 103 AA INPUT С AA 104 C----THE FOLLOWING BCS (LIDSP) IS ACTIVATED IN SAMPLE CASE 5 ONLY. INPUT 105 AA INPUT С 106 AA INPUT BCS LIDSP 107 AA INPUT SURFN = 200 108 AA INPUT TYPE = RECT AA 109 INPUT ACTIVE = BOTTOM 110 AA INPUT PROP = 0.1, 0.1111 AA INPUT SPRI = 0.8 AA 112 INPUT SPRS = 0.8 113 AA INPUT P1 = 1.0, -1.0, 0.0114 AA

115

116

117

AA

AA

AA

INPUT

INPUT

INPUT

P2

P3

COM

= 1.0, 1.0, 0.0

= 0.0, 1.0, 0.0

= * SPECULAR LID *

DATE 05/04/77	TIME 11.07.38.	THERMAL RADIATION	ANALYSIS SY	STEM (TRASYS)	CDC6500/SCOPE	VERSION	PAGE 9	
MODEL = SAMPLE BCS DATA INPUT	BLOCK				FCAL/GBCAL/RKCA			
CARD ORGIN	12345678 1 234567	8 2 2345678 3 2345678	3 4 2345678	5 2345678 6 23	345678 7 2345678	8 EDIT NO.	OLD EDIT NO.	LABEL
						118		AA
INPUT	HEADER BCS DATA					119		AA
INPUT	BCS BOXINR					120		AA
INPUT	BCS BOXINL	_				121		AA
INPUT	BCS LIDINR .O.	.0.,10.,-450.				122		AA
INPUT	BCS BOXOUT					123		AA
INPUT	BCS LIDOUT .0.	.0.,10.,-45.,0.				124		AA
INPUT	BCS MESSR					125		AA
INPUT	BCS MESSL					126		AA
INPUT	BCS LIDSP .0.	.0.,10.,-45.,0.				120		

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION PAGE

MODEL = SAMPLE FURM FACTOR DATA INPUT BLOCK

DATE 05/04/77 TIME 11.07.39.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

IRPUT HEADER FORM FACTOR DATA 127 AA	CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 23	145678 8 FDIT NO OLD FDIT NO	LADEL
RPUT C	INPUT	HEADER FORM EACTOR DATA	NO. OLD EDIT NO.	LABEL
INPUT CCASE1. 128 AA INPUT C C ASE1. INPUT C C ASE1. INPUT C INPUT F INPUT F INPUT F INPUT F INPUT T INPUT	INPUT	TORM PACTOR DATA	127	Λ Λ
INPUT C				
INPUT FIG CASE1 130 AA		CONTRACTOR FORM FACTORS AND EQUIVALENT FORM FACTORS FOR		
INPUT PIG CASE 131		C CASE1.		
IMPUT NODEA 1,2,3,4,11,12,13,14,5,15,21,22,23,24,25,26,END				
INPUT 21.72E0 133 AA INPUT 22.7ED0 134 AA INPUT 23.7ED0 135 AA INPUT 23.7ED0 136 AA INPUT 24.7ED0 136 AA INPUT 25.7ED0 137 AA INPUT 25.7ED0 138 AA INPUT 25.7ED0 138 AA INPUT 26.7ED0 138 AA INPUT 1.1.0. 139 AA INPUT 1.1.1.0. 139 AA INPUT 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.				
IMPUT 22.ZERO 134 AA INPUT 23.ZERO 135 AA INPUT 25.ZERO 135 AA INPUT 25.ZERO 136 AA INPUT 25.ZERO 137 AA INPUT 25.ZERO 138 AA INPUT 25.ZERO 138 AA INPUT 25.ZERO 138 AA INPUT 26.ZERO 138 AA INPUT 15.2.5 AA INPUT 11.12.1.2 140 AA INPUT 11.13.1.3 AA INPUT 11.15.1.5 141 AA INPUT 11.15.1.5 144 AA INPUT 11.15.1.5 AA INPUT 11.15.1.5 144 AA INPUT 11.2.1.12 146 AA INPUT 11.3.1.13 146 AA INPUT 11.5.1.15 146 AA INPUT 11.5.1.15 148 AA INPUT 11.5.1.15 148 AA INPUT 11.5.1.15 148 AA INPUT 11.5.1.15 148 AA INPUT 11.4.1.14 150 AA INPUT 11.5.1.15 AA INPUT 11.5.1.15 AA INPUT 12.3.2.3 152 AA INPUT 12.3.2.3 155 AA INPUT 12.13.2.3 155 AA INPUT 12.13.2.3 155 AA INPUT 12.15.2.5 AA INPUT 13.15.3.5 AA INPUT 13.15.4.5 AA INPUT 13.15.4.5 AA INPUT 14.15.4.5 AA INPUT 1		NODEA 1,2,3,4,11,12,13,14,5,15,21,22,23,24,25,26,5ND	_ _	AA
IMPUT 22.7ERO		BOTH 21.ZERO		AA
IMPUT 23.ZERO			134	AA
IMPUT 24, ZERO 136 AA 1NPUT 25, ZERO 137 AA 1NPUT 25, ZERO 138 AA 1NPUT 1, 1, 0. 138 AA 1NPUT 1, 1, 0. 139 AA 1NPUT 1, 1, 0. 140 AA 1NPUT 11, 13, 1, 13 AA 1NPUT 11, 13, 1, 13 AA 1NPUT 11, 13, 1, 13 AA 1NPUT 11, 14, 1, 4 AA 1NPUT 11, 15, 1, 15 AA 1NPUT 11, 2, 1, 14 AA 1NPUT 11, 2, 1, 14 AA 1NPUT 11, 2, 1, 14 AA 1NPUT 12, 2, 2, 0. 14 AA 1NPUT 12, 13, 2, 3 AA 1NPUT 12, 13, 2, 3 AA 1NPUT 12, 14, 2, 4 AA 1NPUT 12, 14, 2, 4 AA 1NPUT 12, 15, 2, 5 AA 1NPUT 12, 15, 2, 5 AA 1NPUT 12, 15, 2, 15 AA 1NPUT 12, 15, 2, 15 AA 1NPUT 12, 15, 2, 15 AA 1NPUT 12, 14, 2, 14 AA 1NPUT 12, 15, 2, 15 AA 1NPUT 12, 15, 2, 15 AA 1NPUT 12, 13, 2, 13 AA 1NPUT 12, 13, 2, 13 AA 1NPUT 12, 15, 2, 15 AA 1NPUT 12, 15, 2, 15 AA 1NPUT 12, 13, 14, 3, 4 AA 1NPUT 13, 14, 3, 4 AA 1NPUT 13, 15, 3, 15 AA 1NPUT 13, 14, 3, 4 AA 1NPUT 13, 15, 3, 15 AA 1NPUT 14, 15, 4, 15 AA 1NPUT 15, 5, 5, 0. 166 AA 1NPUT 15			135	•
INPUT 25, ZERO 137 AA INPUT 1,1,0. 139 AA INPUT 11,12,1,2 140 AA INPUT 11,13,1,3 141 AA INPUT 11,14,1,4 142 AA INPUT 11,15,1,15 143 AA INPUT 11,13,1,13 144 AA INPUT 11,13,1,13 145 AA INPUT 11,13,1,13 146 AA INPUT 11,14,1,14 147 AA INPUT 11,15,1,15 148 AA INPUT 11,4,1,14 147 AA INPUT 11,4,1,14 147 AA INPUT 11,5,1,15 148 AA INPUT 12,2,0. 149 AA INPUT 12,2,0. 149 AA INPUT 12,13,2,3 150 AA INPUT 12,14,2,4 151 AA INPUT 12,14,2,4 151 AA INPUT 12,14,2,4 151 AA INPUT 12,14,2,4 151 AA INPUT 12,15,2,5 AA INPUT 13,14,3,4 AA INPUT 13,15,3,15 AA INPUT 14,15,4,5 AA INPUT	INPUT		136	
TAPUT	INPUT		137	
INPUT 1.0. INPUT 1.1.0. INPUT 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	INPUT			
INPUT 11.12.1.2 140 AA INPUT 11.13.1.3 141 AA INPUT 11.13.1.3 141 AA INPUT 11.15.1.5 142 AA INPUT 11.15.1.5 143 AA INPUT 11.3.1.13 144 AA INPUT 11.3.1.13 145 AA INPUT 11.3.1.13 146 AA INPUT 11.4.1.14 147 AA INPUT 11.5.1.15 148 AA INPUT 12.3.2.3 149 AA INPUT 12.13.2.3 150 AA INPUT 12.13.2.3 155 AA INPUT 12.3.2.13 INPUT 13.3.3.5 INPUT 13.3.3.3.14 INPUT 13.3.3.3.14 INPUT 13.3.3.3.15 INPUT 13.4.3.4 INPUT 13.3.3.3.16 INPUT 13.4.3.4 INPUT 14.4.5.4.5 INPUT 14.5.4.5 INPUT 14.5.5.5 INPUT 14				
INPUT 11.13.1.3 141 AA INPUT 11.14.1.4 142 AA INPUT 11.15.1.5 143 AA INPUT 11.15.1.5 144 AA INPUT 11.2.1.12 145 AA INPUT 11.3.1.13 146 AA INPUT 11.4.1.14 147 AA INPUT 11.4.1.14 147 AA INPUT 11.5.1.15 148 AA INPUT 12.3.1.2 150 AA INPUT 2.3.1.2 150 AA INPUT 12.13.2.3 152 AA INPUT 12.13.2.3 152 AA INPUT 12.13.2.3 152 AA INPUT 12.13.2.3 155 AA INPUT 12.3.2.13 INPUT 13.3.3.0 INPUT 13.3.3.0 INPUT 13.4.3.4 INPUT 13.5.3.5 INPUT 13.5.3.5 INPUT 13.5.3.5 INPUT 13.5.3.5 INPUT 13.4.3.4 INPUT 13.4.3.4 INPUT 13.4.3.4 INPUT 14.4.5.4 INPUT 14.4.5.4 INPUT 14.5.4.5 INPUT 14.5.5.5 INPUT 14.5.5 INPUT 14.5.5.5 INPUT 14.5.5 INPUT 14.5.5 INPUT 14.5.5 INPUT 1		1,1,0,		
INPUT 11.14.1.4 1.42 AA INPUT 11.15.1.5 1.42 AA INPUT 11.15.1.5 1.44 AA INPUT 11.3.1.13 1.45 AA INPUT 11.3.1.13 1.47 AA INPUT 11.4.1.14 1.47 AA INPUT 11.5.1.15 1.47 AA INPUT 12.3.1.2 1.49 AA INPUT 12.13.2.3 1.49 AA INPUT 12.13.2.3 1.51 AA INPUT 12.14.2.4 1.51 1.53 AA INPUT 12.14.2.4 1.55 AA INPUT 12.14.2.5 AA INPUT 12.14.2.5 AA INPUT 12.14.2.5 AA INPUT 12.14.2.6 1.55 AA INPUT 12.14.2.7 1.55 AA INPUT 12.14.2.8 1.55 AA INPUT 12.14.2.9 1.55 AA INPUT 12.14.2.1 1.56 AA INPUT 12.14.3.1 1.56 AA INPUT 13.14.3.4 1.60 AA INPUT 13.14.3.4 1.60 AA INPUT 13.15.3.5 I.60 AA INPUT 13.15.3.5 I.60 AA INPUT 13.4.3.4 I.60 AA INPUT 13.4.3.4 I.60 AA INPUT 13.4.3.1 I.60 AA INPUT 14.5.4.5 I.60 AA INPUT 5.5.0.				
INPUT 11,15,1,15				•
INPUT 1.1.1.0. 144 AA INPUT 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.				AA
INPUT 11.2.1.12 146 AA INPUT 11.3.1.13 146 AA INPUT 12.5.2.15 AA INPUT 12.5.2.15 159 AA INPUT 12.5.2.15 159 AA INPUT 13.15.3.5 AA INPUT 13.15.4.5 AA INPUT 14.15.4.5 AA INPUT 15.5.0.		11,15,1,5		AA
INPUT 11,2,1,12 145 AA INPUT 11,3,1,13 146 AA INPUT 11,5,1,15 148 AA INPUT 11,5,1,15 149 AA INPUT 2,3,1,2 150 AA INPUT 2,3,1,2 150 AA INPUT 12,13,2,3 152 AA INPUT 12,13,2,3 152 AA INPUT 12,13,2,3 152 AA INPUT 12,13,2,3 152 AA INPUT 12,13,2,3 153 AA INPUT 12,15,2,5 AA INPUT 12,15,2,5 15 AA INPUT 12,2,2,13 156 AA INPUT 12,3,2,13 156 AA INPUT 12,4,2,14 156 AA INPUT 12,5,2,15 157 AA INPUT 12,5,2,15 157 AA INPUT 13,13,14,3,4 159 AA INPUT 3,3,0. 158 AA INPUT 3,3,10, 159 AA INPUT 13,14,3,4 160 AA INPUT 13,15,3,5 161 AA INPUT 13,15,3,5 161 AA INPUT 13,15,3,15 161 AA INPUT 13,15,3,15 161 AA INPUT 13,5,3,15 166 AA INPUT 13,5,3,15 166 AA INPUT 13,5,3,15 166 AA INPUT 14,15,4,5 166 AA INPUT 14,15,4,5 166 AA INPUT 14,15,4,5 168 AA INPUT 14,15,4,5 168 AA INPUT 15,5,0. 169 AA INPUT 5,5,0. 169 AA INPUT 5,5,0.		1.11.0.		AA
INPUT			145	AA
1	H INPUT		146	
INPUT 1.5.1.15 INPUT 2.2.0. 149 AA INPUT 2.3.1.2 150 AA INPUT 2.4.1.4 151 AA INPUT 1.2.13.2.3 152 AA INPUT 1.2.15.2.5 153 AA INPUT 1.2.15.2.5 155 AA INPUT 1.2.5.2.15 157 AA INPUT 1.3.4.1.4 159 AA INPUT 1.3.4.3.1 160 AA INPUT 1.3.15.3.5 160 AA INPUT 1.3.15.3.5 160 AA INPUT 1.3.15.3.5 161 AA INPUT 1.3.5.3.15 162 AA INPUT 1.3.5.3.15 166 AA INP	. INPUT		147	
INPUT 2.3.1.2 150 AA INPUT 2.3.1.2 150 AA INPUT 2.4.1.4 151 AA INPUT 12.13.2.3 152 AA INPUT 12.14.2.4 153 AA INPUT 12.15.2.5 154 AA INPUT 12.3.2.13 155 AA INPUT 12.3.2.13 156 AA INPUT 12.4.2.14 156 AA INPUT 12.5.2.15 157 AA INPUT 12.5.2.15 157 AA INPUT 12.4.2.14 156 AA INPUT 13.3.0. 158 AA INPUT 3.3.0. 158 AA INPUT 3.3.0. 159 AA INPUT 3.4.1.4 160 AA INPUT 13.15.3.5 161 AA INPUT 13.15.3.5 161 AA INPUT 13.15.3.5 161 AA INPUT 13.5.3.16 162 AA INPUT 13.5.3.16 163 AA INPUT 13.5.3.15 166 AA INPUT 13.5.3.15 166 AA INPUT 14.4.0. 165 AA INPUT 14.15.4.5 166 AA INPUT 14.5.4.15 166 AA INPUT 14.5.4.15 168 AA INPUT 15.5.0. 169 AA INPUT 5.5.0. 169 AA INPUT 5.5.0. 1770 AA	□ INPUT			•
INPUT 2.3.1.2 150 AA INPUT 2.4.1.4 151 AA INPUT 12.13.2.3 152 AA INPUT 12.14.2.4 153 AA INPUT 12.15.2.5 154 AA INPUT 12.3.2.13 155 AA INPUT 12.4.2.14 156 AA INPUT 12.5.2.15 157 AA INPUT 12.5.2.15 157 AA INPUT 12.5.2.15 157 AA INPUT 13.15.3.5 159 AA INPUT 13.15.3.5 160 AA INPUT 13.14.3.4 160 AA INPUT 13.14.3.5 161 AA INPUT 13.15.3.5 161 AA INPUT 13.4.3.14 160 AA INPUT 13.4.3.14 160 AA INPUT 13.4.3.15 166 AA INPUT 14.15.4.5 166 AA INPUT 15.5.0. 169 AA INPUT 5.5.0. 169 AA	INPUT			
INPUT				
INPUT 12.13.2.3 152 AA INPUT 12.14.2.4 153 AA INPUT 12.15.2.5 154 AA INPUT 12.3.2.13 155 AA INPUT 12.3.2.13 155 AA INPUT 12.4.2.14 156 AA INPUT 12.5.2.15 157 AA INPUT 12.5.2.15 157 AA INPUT 12.5.2.15 157 AA INPUT 12.5.2.15 158 AA INPUT 12.5.2.15 159 AA INPUT 12.5.2.15 159 AA INPUT 12.5.2.15 160 AA INPUT 12.5.2.15 160 AA INPUT 12.5.2.15 160 AA INPUT 12.5.2.15 161 AA INPUT 13.15.3.5 161 AA INPUT 13.15.3.5 161 AA INPUT 13.5.3.15 162 AA INPUT 13.5.3.15 164 AA INPUT 13.5.3.15 166 AA INPUT 14.5.4.5 168 AA INPUT 15.5.0. 169 AA INPUT 5.5.0. 170 AA				
INPUT 12.14.2.4 INPUT 12.15.2.5 ISS AA INPUT 12.3.2.13 INPUT 12.3.2.13 INPUT 12.4.2.14 INPUT 12.5.2.15 INPUT 12.5.2.15 INPUT 12.5.2.15 INPUT 13.4.3.0. INPUT 13.14.3.4 INPUT 13.15.3.5 INPUT 13.15.3.5 INPUT 13.15.3.5 INPUT 13.15.3.15 INPUT 13.4.3.14 INPUT 13.5.3.15 INPUT 14.4.0. INPUT 14.5.4.5 INPUT 14.5.4.5 INPUT 14.5.4.15 INPUT 14.5.4.15 INPUT 15.5.0. INPUT 15.5.0. INPUT 15.5.0.				
INPUT 12,15,2,5 154 AA INPUT 12,4,2,14 156 AA INPUT 12,5,2,15 157 AA INPUT 12,5,2,15 157 AA INPUT 12,5,2,15 157 AA INPUT 12,5,2,15 158 AA INPUT 159 AA INPUT 13,14,3,4 160 AA INPUT 13,15,3,5 161 AA INPUT 13,15,3,5 161 AA INPUT 13,14,3,14 162 AA INPUT 13,4,3,14 163 AA INPUT 13,5,3,15 164 AA INPUT 14,5,4,5 166 AA INPUT 14,15,4,5 166 AA INPUT 14,15,4,5 166 AA INPUT 14,15,4,5 166 AA INPUT 14,15,4,5 166 AA INPUT 14,5,4,15 169 AA INPUT 15,5,0.				
INPUT 12.3.2.13 155 AA INPUT 12.4.2.14 156 AA INPUT 12.5.2.15 157 AA INPUT 3.3.0. 158 AA INPUT 3,4.1.4 159 AA INPUT 13.14.3.4 160 AA INPUT 13.15.3.5 161 AA INPUT 13.15.3.5 161 AA INPUT 13.4.3.14 163 AA INPUT 13.4.3.14 163 AA INPUT 13.5.3.15 164 AA INPUT 13.5.3.15 166 AA INPUT 4.4.0. 165 AA INPUT 4.4.0. 165 AA INPUT 14.15.4.5 166 AA INPUT 14.5.4.15 168 AA INPUT 15.5.0. 169 AA INPUT 5.5.0.		12,14,2,4		AA
INPUT 12.4.2.14 156 AA INPUT 12.5.2.15 157 AA INPUT 3.3.0. 158 AA INPUT 3.4.1.4 159 AA INPUT 13.14.3.4 160 AA INPUT 13.15.3.5 161 AA INPUT 3.13.0. 162 AA INPUT 13.4.3.14 163 AA INPUT 13.5.3.15 164 AA INPUT 13.5.3.15 165 AA INPUT 14.15.4.5 166 AA INPUT 14.15.4.5 166 AA INPUT 14.15.4.5 166 AA INPUT 14.15.4.5 166 AA INPUT 15.5.0. 169 AA INPUT 5.5.0.		12,15,2,5		AA
INPUT 12.4.2.14 156 AA INPUT 12.5.2.15 157 AA INPUT 13.14.3.4 160 AA INPUT 13.15.3.5 161 AA INPUT 13.4.3.14 163 AA INPUT 13.5.3.15 164 AA INPUT 13.5.3.15 164 AA INPUT 14.5.4.5 AA INPUT 14.5.4.5 166 AA INPUT 14.5.4.15 168 AA INPUT 5.5.5.0. 169 AA INPUT 5.5.5.0.		12.3,2,13		AA
INPUT 12,5,2,15 157 AA INPUT 3,3,0. 158 AA INPUT 13,14,3,4 160 AA INPUT 13,15,3,5 161 AA INPUT 13,4,3,4 162 AA INPUT 13,4,3,14 162 AA INPUT 13,4,3,14 163 AA INPUT 13,5,3,15 164 AA INPUT 13,5,3,15 165 AA INPUT 14,15,4,5 166 AA INPUT 14,15,4,5 166 AA INPUT 14,15,4,5 168 AA INPUT 14,5,4,15 168 AA INPUT 14,5,4,15 169 AA INPUT 5,5,0. 169 AA INPUT 5,5,0.			156	AA
INPUT 3.3.0. 158 AA INPUT 3.4.1.4 159 AA INPUT 13.14.3.4 160 AA INPUT 13.15.3.5 161 AA INPUT 3.3.0. 162 AA INPUT 13.4.3.14 163 AA INPUT 13.5.3.15 164 AA INPUT 13.5.3.15 165 AA INPUT 4.4.0. 165 AA INPUT 4.4.0. 166 AA INPUT 4.14.0. 167 AA INPUT 4.14.0. 167 AA INPUT 5.5.0. 168 AA INPUT 5.5.0.			157	
INPUT 13.14.3.4 INPUT 13.15.3.5 INPUT 13.15.3.5 INPUT 13.15.3.5 INPUT 13.4.3.14 INPUT 13.5.3.15 INPUT 13.5.3.15 INPUT 14.15.4.5 INPUT 14.15.4.5 INPUT 14.15.4.5 INPUT 14.5.4.15 INPUT 14.5.4.15 INPUT 15.5.0.	INPUT		158	
INPUT 13.14.3.4 INPUT 13.15.3.5 INPUT 13.15.3.5 INPUT 3.13.0. INPUT 13.4.3.14 INPUT 13.5.3.15 INPUT 13.5.3.15 INPUT 4.4.0. INPUT 14.15.4.5 INPUT 4.14.0. INPUT 4.14.0. INPUT 4.15.0. INPUT 4.15.0. INPUT 14.5.4.15 INPUT 15.5.0. INPUT 5.5.0. INPUT 5.5.0.	INPUT		159	
INPUT 13.15.3.5 INPUT 3,13.0. INPUT 3,13.0. INPUT 13.4.3.14 INPUT 13.5.3.15 INPUT 13.5.3.15 INPUT 4.4.0. INPUT 14.15.4.5 INPUT 14.5.4.5 INPUT 4.14.0. INPUT 15.5.0. INPUT 168 AA INPUT 5.5.0. INPUT 5.5.0.	INPUT			
INPUT 3,13.0. INPUT 13,4.3,14 INPUT 13,5.3,15 INPUT 14,4.0. INPUT 14,15,4,5 INPUT 4.14.0. INPUT 4.14.0. INPUT 14,5.4,15 INPUT 15,5.0. INPUT 5,5.0.				
INPUT 13.4.3.14 INPUT 13.5.3.15 INPUT 14.4.0. INPUT 14.15.4.5 INPUT 4.14.0. INPUT 4.14.0. INPUT 15.5.0. INPUT 5.5.0.				
INPUT 13.5.3.15 INPUT 4.4.0. INPUT 4.4.5.4.5 INPUT 4.15.4.5 INPUT 4.14.0. INPUT 14.5.4.15 INPUT 14.5.4.15 INPUT 5.5.0. INPUT 5.5.0. INPUT 5.15.0.				
INPUT 4.4.0. INPUT 4.4.0. INPUT 14.15.4.5 INPUT 4.14.0. INPUT 4.14.0. INPUT 14.5.4.15 INPUT 5.5.0. INPUT 5.5.0. INPUT 5.15.0.				
INPUT 14.15.4.5 INPUT 4.14.0. INPUT 4.14.0. INPUT 14.5.4.15 INPUT 14.5.4.15 INPUT 5.5.0. INPUT 5.15.0.				
INPUT 4.14.0. INPUT 4.14.0. INPUT 14.5.4.15 INPUT 5.5.0. INPUT 5.15.0.				
INPUT 4.14.0. 167 AA INPUT 14.5.4.15 168 AA INPUT 5.5.0. 169 AA INPUT 5.15.0. 170 AA		14,15,4,5		AA
INPUT 14.5.4.15 INPUT 5.5.0. INPUT 5.15.0. 168 AA INPUT 5.15.0.				AA
INPUT 5,5,0. 169 AA INPUT 5,15,0. 170 AA		14.5.4.15	168	AA
INPUT 5.15.0. 170 AA			169	
	INPUT		170	
171 AA			171	

MODEL = SAMPLE		SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/R	
CORRESPONDENCE		M 00 AF	SEE S EDIT NO OLD FOLT NO
CARD ORGIN	12345678 1 234	45678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 23 45	172
*******	HEADER CORRES	PONDENCE DATA	173
INPUT			174
INPUT	CFNTER C	DRRESPONDENCE DATA FOR CASE 2	175
INPUT	C		176
INPUT	FIG CASE2		177
INPUT	1 10	= 1,11,22	178
INPUT	,	= 2.25	179
INPUT	3	= 3.13.24	180
INPUT	3	= 4,14,21	181
INPUT	5	= 5,15,26	182
INPUT	12	= 12,23	183
INPUT			184
INPUT	CENTER C	ORRESPONDENCE DATA FOR CASE 3 TO COMBINE FORM FACTORS	185
INPUT			186
INPUT	C FIG CASE3.	EE	187
INPUT	FIG CASE3.	= 1,11,22	188
INPUT	1	= 2,25	189
INPUT	2 3	= 3,13,24	190-
INPUT	3	= 4,14,21	191
INPUT	4	= 5,15,26	192
INPUT	5	= 12.23	132
INPUT	12	= 12,25	

DATE 05/04/77 TIME 11.07.43. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

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MODEL = SAMPLE OPERATION DATA INPUT BLOCK (PASS 1) SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

CARD ORGIN

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

INPUT

HEADER OPERATIONS DATA

193

AA

+++++ OPERATIONS DATA BLOCK (PASS 1) COMPLETE +++++

MODEL = SAMPLE

ÜPÉKATIUN	DAIA	INPUT	BLOCK	(PASS 2)	

UPE	RAITUN DATA TRE			
CAR	D ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7		
			194	AA
INP	• •	C AND THE COST A CONFICURATION	.195	AA
INP	UT	CBUILD THE CASE 1 CONFIGURATION	196	AA
INP	· ·	C	-0	
PRO	iG .	STEP -1	197	AA
INP	TUT	BUILD CASE1.BOXINR, BOXINL, LIDINR, BOXOUT, LIDOUT	-0	
PRO)G	CALL BUILDC (BOXINR, 6HCASE1)	-0	
PRO		CALL ADD (BOXINL)	-0	
PRO		CALL ADD (LIDINR)	-0	
PRO		CALL ADD (BOXOUT)	-0	
PRO		CALL ADD (L1DOUT)	198	AA
INP		<u>C</u>	199	AA
INP		CPLOT THE CASE 1 CONFIGURATION INDICATING THE ACTIVE	200	AA
INP		CSIDES OF THE NODES.	200	AA
INP		C	202	AA
INF		CALL NDATAS(0,0.0,YES,0)	202	AA
		L NPLOT		ÄÄ
INP			204	ÄÄ
INP		CCALCULATE SHADOW FACTOR TABLES FOR SUBSEQUENT USE IN	205	ÂÃ
INF		CSAMPLE CASE 2 IN THE CALCULATION OF DIRECT FLUXES.	206	ÃÃ
INF	•	COLUMN TO THE CASE 2 IN THE CASE 2 IN THE CASE 2	207	AA
INF		L SFCAL	208	AA AA
I INF		L SPEAL	209	
L INF		CCALCULATE THE FORM FACTOR MATRIX.	210	AA
T INF		CCALCULATE THE FURNIT FACTOR MATRIX	211	AA
INF		C	212	AA
INF		L FFCAL	213	AA
INF	PUT	C MATRIX	214	AA
INF	PUT	CCALCULATE THE GRAY BODY MATRIX.	215	AA
INF	PUT	C	216	AA
INF	PUT	CALL GBDATA(BOTH, 0, FF)	217	AA
IN	PUT	L GBCAL	218	AA
IN	PUT	CALL RKDATA(0,0,0,0,SPACE,999,0,0,0,0)	219	AA
	PUT		220	AA
	PUT	CCALCULATE AND PUNCH RADIATION CONDUCTORS.	221	AA
	PUT	Ç.	222	AA
	PUT	L RKCAL	223	AA
	PUT	END OF DATA	223	
7 14	FUI			

DATE 05/04/77 TIME 11.07.46. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION MODEL = SAMPLE SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN PRUCESSOR CORE ALLOCATION THE FOLLOWING IS THE PROCESSOR CORE ALLOCATION FOR THOSE SEGMENTS WHICH WILL BE LOADED IN THIS EXECUTION (APPROX.) ... OCTAL/DECIMAL TRASYS (0) SEGMENT 033501/ 14145 OPERATIONS DATA (NOT KNOWN AT THIS TIME)..... 075000/ 31232 FORM FACTOR SEGMENT 100100/ 32832 SHADOW FACTOR SEGMENT 063700/ 26560 NODE PLOTTER SEGMENT 047600/ 20352 GRAY BODY SEGMENT 052400/ 21760 RADATION CONDUCTOR SEGMENT 050000/ 20480 GRAY BODY DYNAMIC COMMON 004600/ 2432 RADIATION CONDUCTOR DYNAMIC COMMON 000574/ 380 GRAY BODY MINIMUM - MAXIMUM CORE 052372/ 21754 - 052372/ 21754 RADIATION CONDUCTOR MINIMUM - MAXIMUM CORE 047505/ 20293 - 047751/ 20457 1++ THE FFPROG SEGMENT APPEARS TO BE TOO LONG FOR AMOUNT OF CORE (075000B) AVAILABLE ++CAUTION MINIMUM CORE NEEDED FOR PROCESSOR EXECUTION 100100/ 32832 MAXIMUM CORE NEEDED FOR PROCESSOR EXECUTION 100100/ 32832

AMOUNT OF CORE THAT WILL BE USED BY PROCESSSOR . 100100/ 32832

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

15

DATE 05/04/77 TIME 11.07.47.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL = SAMPLE WRAP UP OF THE PRE-PROCESSOR

CAUTION MESSAGE(S) OCCUR FOLLOWING THE FIRST 100 OR LESS EDIT SEQUENCE NUMBER(S) LISTED BELOW ...

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE WRAP UP OF THE PRE-PROCESSOR SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

PRE-PROCESSOR ACCOUNTING INFORMATION	CP-SEC	PP-SEC	DYM-STORAGE
SOURCE EDITING	.726	2	515
DOCUMENTATION DATA PRE-PROCESSING	Ο.	0	0
QUANTITIES DATA PRE-PROCESSING	.015	1	266
ARRAY DATA PRE-PROCESSING	Ο.	0	0
SURFACE DATA PRE-PROCESSING (PASS 1)	1.153	3	64
SURFACE DATA PRE-PROCESSING (PASS 2)	.216	4	1141
BCS DATA PRE-PROCESSING	.133	0	186
FORM FACTOR DATA PRE-PROCESSING	.586	3	1169
SHADOW DATA PRE-PROCESSING	Ο.	0	0
FLUX DATA PRE-PROCESSING	О.	0	0
CORRESPONDENCE DATA PRE-PROCESSING	.175	0	101
OPERATIONS DATA PRE-PROCESSING	1.481	2	872
SUBROUTINE DATA PRE-PROCESSING	.167	1	0
SEQUENTIAL TAPE INITIATION	.025	0	0

TOTAL CP TIME FOR PRE-PROCESSOR 5.893 DECIMAL SECONDS OR 000006 OCTAL SECONDS

TOTAL PP TIME FOR PRE-PROCESSOR 19 DECIMAL SECONDS OR 000023 OCTAL SECONDS

MINIMUM DYNAMIC STORAGE NEEDED BY PRE-PROCESSOR .. 1169 DECIMAL WORDS

DYNAMIC STORAGE AVAILABLE TO PRE-PROCESSOR 3384 DECIMAL WORDS

MINIMUM CORE NEEDED FOR PRE-PROCESSOR EXECUTION .. 071000 OCTAL WORDS

* * * * * * * * *

NUMBER OF CAUTION MESSAGES .. 1

* * * * * * * * *

NORMAL TERMINATION BY PRE-PROCESSOR

NASA/MARTIN MARIETTA THERMAL RADIATION ANALYSIS SYSTEM CDC6500/SCOPE 3.4

111111111111 111111111111 11	RRRRRRRR RRRRRRRR RRR RRR RRR RRR RRRRRR	ΑΑΑΑΑ		TRASYS II	
	RRR RRR RRR RRRR	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	\$	YYYY YYYY YYY YYY YYY YYY YYY YYY YYY Y	\$\$\$\$\$\$\$\$\$\$ \$\$\$\$\$\$\$\$\$\$\$\$\$ \$\$\$ \$\$\$ \$\$\$ \$
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PRE-PROCESSOR EXECUTION

LATEST LIBRARY MOD.VER NUMBER SL2E1
LAST LIBRARY MODIFICATION DATE 04/26/77

DATE 05/04/77 TIME 11.44.15. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE

MODEL=SAMPLE CONFIG=SAMPLE STEP=-1 SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

HITTHEOPERATIONS DATA SEGMENT USES ABOUT 036700 OCTAL WORDS OF CORE STORAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 PROCESSING OPERATIONS DATA

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

NODE	BCS	AREA	ALPH	EMISS	SURF. TYPE	ACTIVE	COMMENTS
1	BOXINR	1.00000	.900	.900	RECTANGLE	EOTTOM	INNER RIGHT FRONT
2	BOXINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT SIDE
3	BOXINR	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BACK
4	BOXINR	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BOTTOM
11	BOXINL	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT FRONT
12	BOXINL	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT SIDE
13	BOXINL	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BACK
14	BOXINL	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BOTTOM
5	LIDINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT LID
15	LIDINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER LEFT LID
21	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
22	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
23	BOXOUT	1.04040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
24	BOXCUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
25	BOXOUT	1.04040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
26	LIDGUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACE OF LID

NODE, AREA, AND PROPERTIES ARRAYS HAVE BEEN WRITTEN ON THE -RSO- TAPE BY -BUILDC- (ACCESS NUMBER= 1)

ADJUSTING FIELD LENGTH TO 047600 FOR THE NP SEGMENT

H-20

DATE 05/04/77 TIME 11.44.24.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1
NODE PLOTTER DATA CUTPUT

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

NODE PLOTTER

	PARAMETER	DESCRIPTION	OPTION *.	DEFAULT
	NV	VIEW NUMBER	1-6	1
	IVU	NIE M	3HALL 3H3-D 1HX 1HY 1HZ 3HGEN	3HALL
	SCL	SCALE FACTOR (3.15/LARGEST DISTANCE FROM CCS ORIGIN IN USER S UNITS)		AUTOMATIC SCALE
	IZELN	ARRAY NAME CONTAINING NUMBER OF NODES TO BE SELECTIVELY PLOTTED	ARRAY NAME	PLOTS ALL NODES
F	ITIT	ARRAY NAME OF PLOT TITLE	ARRAY NAME	USES JOB TITLE
-21	ROTX, ROTY, ROTZ,	VIEW ROTATIONS (FOR IVU = 3HGEN)	0 @ ANG @ 360	0.0 0.0 0.0
	IROTX. IROTY, IROTZ	ORDER OF ROTATIONS (FOR IVU = 3HGEN)	1.2,3 (ANY ORDE	R)1,2,3

*INPUT ZERO FOR DEFAULT ACTION

CALLING SEQUENCE%.

CALL NDATA (NV. IUV. SCL. ISELN, ITIT, ROTX, ROTY, ROTZ, IROTX, IROTY, IROTZ)

OR

CALL NDATAS (NV. IVU. SCL)

NOTE% IF NO CARLES AND ATAS ARE MADE, A CALL TO NPLOT WILL RESULT IN ALLESS AUTOMATICALLY SCALED GENERATED FOR NODES.

DATE 05/04/77 TIME 11.44.24.	THERMAL RADIATION ANALYS	S SYSTEM (TRASYS) CDC6500/SCOPE 3.4	PAGE	4
MODEL=SAMPLE CONFIG=CASE1 STEP=-1	SAMPLE CASE	- NPLOT/SFCAL	/FFCAL/GBCAL/RKCAL -	ORIGINAL RUN	

VIEW=3-D	SCALE= 1.7384	VIEW NUMBER=1
VIEW=Z-AXIS	SCALE= 1.2384	VIEW NUMBER=1
VIEW=X-AXIS	SCALE= 1.2384	VIEW NUMBER=1
VIEW=Y-AXIS	SCALE= 1.2384	VIEW NUMBER=1

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 063700 FOR THE SF SEGMENT

PAGE

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP==1 SHADOW FACTOR GENERATOR LINK

	NODE	1	0	20	.40	60	80	100	120	140	LOCK 160		200	220	240	260	280	300	320	340	360	
	INFRA R	RED																				CONE
	SHADOW		LE																			ANGLE
				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	0
			0	0	0	0	0	.58	.42	.25	.11	0	0	0	0	1.00		0	0	0	0	41*
			Ō	0	0	0	0	.28	.31	.17	.08	0	0	0	.14	.83		0	0	0	0	60
			Ō	0	G	0	0	.11	.14	.11	.03	0	0	O	. 17	.39	0	0	0	0	0	75
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
			0	0	0	0	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104
			0	0	0	0	0	0	0	0	0	0	0	0	0 .	0	0	0	0	0	0	120
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	139
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180
											CLOCK	ANGLI	E									
	NODE	1	0	20	40	60	80	100	120		160	180	200	220	240	260	280	300	320	340	360	
	SOLAR		_																			CONE ANGLE
	SHADOW	TAE							4 00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1 00	1 00	1.00	1.00	0
			1.00		1.00		1.00	1.00	1.00				0	0	0	1.00		0	0	0	0	41
4			0	0	0	0	0	.58 .28	.31	.17	.08		0	ŏ	. 14			Ô	ŏ	ō	ō	60
			0	0	0	0	0		.14	.11	.03		0	ñ	.17	.39		Õ	Õ	ŏ	ō	75
ن			0	0	0	0	0	.11	^.14	\.'·	^.03	0	0	0	٥٠٠	٥.5	ñ	Õ	Õ	Ô	ŏ	90
			0	0	0	0	0	0	0	0	0	0	0	Ŏ	0	Ô	Õ	Õ	õ	ŏ	ŏ	104
			0	0	0	0	0	0	0	0	0	Ď	0	Ô	Õ	ŏ	Õ	ā	ŏ	ō	ŏ	120
			o o	0	0	0	0	0	0	0	0	ŏ	Õ	ň	0	0	ŏ	Õ	ŏ	Õ	Ŏ	139
			0	0	0	0	0	. 0	0	õ	0	ŏ	ŏ	ŏ	ō	ŏ	ō	ō	ŏ	ō	Ö	180

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

										CLOCK	ANGL	Ε									
NODE	2	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
INFRA	RED										•										CONE
SHADOW		BLE																			ANGLE
	• • • • •	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	0
		.58	0	0	0	0	0	0	0	0	0	0	0.	0	.11	.39	.61	.64	.58	.58	41
		.28	0	0	0	0	0	0	0	0	0	0	0	0	.08	.61	.58	.36	.31	.28	60
		.11	Ō	Ö	Ö	Ō	0	0	0	0	0	0	0	0	.17	.39	.25	.17	. 14	.11	75
		0	ō ·	Ō	Ō	Ō	Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	90
		ō	ŏ	0 -	ō	ŏ	Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	104
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
		ō	Ō	Ō	Ō	Ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	139
		Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180
										CLUUK	ANGL	E									
NODE	2	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
SOLAR																					CONE
SHADOV	. TA	815																			ANGLE
SHADOR	1 17	.33	.33	.33	.33	. 33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	0
		.58		0	0	0	0	0	0	0	٥	0	0	0	.11	.39	.61	.64	.58	.58	41
		.28		ŏ	Õ	Õ	0	ō	ō	Ŏ	ō	ō	ō	Ō	.08	.61	.58		.31	.28	60
1		.11	Ċ	ŏ	Ô	Ô	ñ	ñ	Õ	ō	Õ	Ō	Õ	Ō	.17	.39			.14	.11	75
5		٠	ŏ	ŏ	ŏ	Õ	ñ	Ö	Ö	Ô	Õ	Ŏ	ō	ō	0	0	0	0	0	0	90
		Ô	ŏ	ŏ	ŏ	Ö	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	Ö	ō	ŏ	Ŏ	Ö	0	104
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		Ď	Ö	ŏ	Ö	0	ŏ	Õ	0	Ö	ō	ŏ	ō	Õ	ō	ō	ō	Ŏ	Ŏ	Ō	180
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DATE 05/04/77 TIME 11.45.22.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

	NODE	3	0	20	40	60	80	100	120	140	CLOCK 160	ANGL 180	E 200	220	240	260	280	.300	320	340	360	
	INFRA 1 SHADOW																					CONE ANGLE
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			.83		.50	.28	.17	0	0	0	0	0	0	0	0	0	0	.17	.67	.83	.83	41
			.50		.42	.33	.08	0	0	0	0	0	0	0	0	0	. 25	.75	.83	.67	.50	60
			.33	.25	.19	.14	.11	0	0	0	0	0	0	0	0	0	. 22	.44	.33	.33	.33	75
			0	0	o	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
			0	0	0	0	0	0	0	0	0	0	0	0 '	0	0	0	0	Ó	Ö	0	104
			Ο.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
			0	0	0	0	0	0	0	0	0	0	0	0	0	Ó	0	0	Ò	Ō	0	139
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180
											CLOCK	ANGL	Ε									
	NODE	3	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	SOLAR SHADOW	TAI	BLE																			CONE
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
_	,		.83		.50	.28	.17	0	0	0	0	0	0	0	0	0	0	.17	.67	.83	.83	41
Ŧ			.50		.42	.33	.08	o .	0	0	0	0	0	0	0	0	.25	.75	.83	.67	.50	60
25			.33	.25	.19	.14	.11	0	C	0	0	0	0	0	0	0	. 22				.33	75
O1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
			0	0	0	0	0	0	0	0	0 -	0	0	0	0	0	0	0	0	Ō	Ô	104
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ō	Ō	Ō	120
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ō	Ŏ	ō	Ö	139
			0	0	0	0	C	0	0	0	0	0	0	0	0	Ö	0	0	Ŏ	Ŏ.	Ŏ	180

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

	NODE	4	0	20	40	60	80	100	120	140	CLOCK 160	ANGLI 180	E 200	220	240	260	280	300	320	340	360	CONE
	INFRA SHADOW		33 .17 0 0 0 0	.33 .11 0 0 0	.33 .17 0 0 0 0	.33	.33 .14 0 0 0 0	.33 .14 0 0 0 0 0 0 0 0 0 0 0	.33 .06 0 0	.33		.33	.33	.33	.33	.33 .17 .19 0 0 0	.33 .50 .22 0 0 0	.33 .50 .08 0 0 0	.33 .33 0 0 0 0 0	.33 .17 0 0 0 0	.33	CONE ANGLE 0 41 60 75 90 104 120 139
	NODE	4	0	20	40	60	80	100	120	140	CLOCK 160	ANGL 180	E 200	220	240	260	280	300	320	340	360	CON
H-26	SOLAR SHADOW	I TA	BLE .33 .17 0 0 0 0 0	.33	.33	.33 .08 0 0 0	.33 .14 0 0 0 0 0	.33 .14 0 0 0 0 0	.33 .06 c o o			.33	.33	.33	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.33 .17 .19 0 0 0	.50	.50	.33			ANGL 0 41 60 75 90 104 120 139

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN SHADOW FACTOR GENERATOR LINK CLOCK ANGLE NODE 11 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 INFRA RED CONE SHADOW TABLE ANGLE 0 0 1.00 0 0 0 0 .11 .25 .42 .58 0 41 .83 .14 0 0 .08 .17 .31 .28 0 0 60 .39 .17 0 .03 .11 .14 .11 0 0 75 0 0 90 0 0 0 0 0 0 0 0 104 0 0 0 120 0 139 0 180 0 CLOCK ANGLE NODE 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 SOLAR CONE SHADOW TABLE ANGLE 0 1.00 0 .11 .25 .42 .58 0 41 0 .83 .14 0 .28 0 .08 .17 .31 0 60

.03

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.11

.11 0

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

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120

139

180

DATE 05/04/77 TIME 11.45.40.

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.17 0

PAGE

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

							2.5		400	140	CLOCK 160	ANGLI	E 200	220	240	260	280	300	320	340	360		
	NODE	12	0	20	40	60	80	100	120	. 140	100	100	200	210	270	200				•	-		
																						CONE	
	INFRA																					ANGLE	
	SHADOW	IAL		.33	.33	.33	.33	.33	.33	.33	. 33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	0	
			.33 .58	.58	.64	.61	.39	.11	0	0	0	0	0	0	0	0	0	0	0	0	.58	41	
			.28	.31	.36	.58	.61	.08	ŏ	Ö	Ö	Ò	Ō	Ó	0	0	0	0	0	0	.28	60	
			.11	.14	.17	.25	.39	.17	õ	ō	0	0	0	0	0	0	0	0	0	0	.11	75	
			0	0	0	0	0	0	Ŏ	Ō	0	0	0	0	0	0	0	0	0	0	0	90	
			ŏ	ŏ	Õ	ŏ	Ö	ō	0	0	0	0	0	0	0	0	0	0	0	0	0	104	
			Ö	Ŏ	ō	ō	Ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	
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			Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	V	160	
													_										
											CLOCK			000	240	260	280	300	320	340	360		
	NODE	12	0	20	40	60	80	100	120	140	160	180	200	220	240	200	200	500	320	0-10	•••		
																						CONE	
	SOLAR																					ANGLE	
	SHADOV	TA						.33	.33	.33	.33	.33	.33	.33	. 33	.33	.33	.33	.33	. 33	.33	0	
			.33	.33		.33	.33		0	0	0	0.33	0	0	0	0	0	0	0	0	.58	41	
=			.58	.58 .31	.64 .36	.58		.08	-	ŏ	ŏ	Õ	ŏ	ŏ	ŏ	Ŏ.	0	0	0	0	.28	60	
5			.28	.14		.25	.39	.17	Ö	Ö	ŏ	ō	ŏ	Ö	0	0	0	0	0	0	. 11	75	
ō			0	0	۵.,	0.23	0	٥	Õ	Ŏ.	Ö	0	0	0	0	0	0	0	0	0	0	90	
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			0	ŏ	ŏ	Ö	Ö	ō	0	0	0	0	0	0	0	0	0	0	0	0	0	139	
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			•	•	-	•	-	-															

DATE 05/04/77 TIME 11.47.09. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

!	NODE	13	0	20	40	60	80	100	120	140	CLOCK 160	ANGLI 180	E 200	220	240	260	280	300	320	340	360	
	INFRA SHADOW		BLE																			CONE ANGLE
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			.83	.83	.67	.17	Ŏ	ō	Ō	Ō	0	Ö	Ō	Ō	Ō	Ó	.17	.28	.50	.72	.83	41
			.50	.67	.83	.75	.25	-	Õ	ō	ō	Õ	ŏ	ō	ō	Õ	.08	.33	.42	.56	.50	60
			.33	.33	.33	.44	.22		Ŏ	ō	Ö	Ö	Ŏ	ŏ	Õ	ŏ	.11	.14		.25	.33	75
			0	0	0	0	0	ŏ	ŏ	Ö	ō	ŏ	ŏ	ŏ	Õ	ŏ	0	0	0	0	0	90
			ŏ	ŏ	ŏ	ŏ	Ŏ	ō	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ.	ō	ŏ	ŏ	ŏ	ŏ	Ŏ	ŏ	104
			ŏ	Ô	Ö	Ô	Ô	Õ	ŏ	ō	ō	Ö	Ŏ	ŏ	ŏ	Ŏ	Ö	Ö	Õ	ŏ	ŏ	120
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			Ö	Ö	0	Ô	Ô	ŏ	Õ	Õ	ŏ	Ô	ŏ	Õ	ñ	Õ	Õ	Õ	ŏ	ŏ	ŏ	180
			U	v	•	•	U	•		•	•	•	•	·	•	•	•	J	•	•	•	.00
											CLOCK	ANGI	F									
	NODE	13	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	SOLAR SHADOW	'TAI	BLE																			CONE ANGLE
			Ó	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			.83	.83	.67	.17	0	0	0	0	0	0	0	0	0	0	.17	.28	.50	.72	.83	41
Ξ			.50	.67	.83	.75	. 25	0	0	0	0	0	0	0	0	0	.08	.33	.42	.56	.50	60
			.33	.33	.33	.44	.22	0	0	0	0	0	0	0	0	0	.11	.14	.19	. 25	.33	75
9			0	0	0	0	0	Ō	Ō	0	0	0	0	Ō	0	Ö	0	0	0	0	0	90
			ŏ	ō	0	Ŏ	Ö	Ô	Õ	0	Ō	Ō	ō	ō	ō	ō	Ô	Ō	ŏ	Ö	Ō	104
			ŏ	Õ	ō	ō	Ŏ	ŏ	Ö	ŏ	Õ	ō	ŏ	ŏ	ŏ	ŏ	ŏ	ă	ŏ	Ö	Ŏ	120
			ŏ	Ô	Õ	Ô	ŏ	ŏ	ŏ	ŏ	ō	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	Õ	ŏ	ŏ	.0	139
			Ö	Ô	õ	Ô	Ô	ŏ	Õ	õ	Ō	Õ	ň	ŏ	ŏ	ŏ	ŏ	Õ	ŏ	ŏ	0	180
			•	V	v	•	v	•	•	v	•	•	•	•	•	•	•	•	V	v	J	.50

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

	NODE	14	0	20	40	60	80	100	120	140	CLOCK 160	ANGL 180	E 200	220	240	260	280	300	320	340	360	
	INFRA	RED																				CONE ANGLE
	SHADOW		BLE											•						22	.33	ANGLE
			.33		.33	.33	.33	.33	.33	4	.33	.33	_		.33	.33	.33	.33	.33	.33	.17	41
			. 17	.17	.33	.50	.50	.17	0	0	0	0	0	.06		.14	.14	0.08	^.''	0	0 '	60
			0	0	0	.08		.19	0	0	0	0	0	0	0	0	ŏ	Ö	Õ	ŏ	Ö	75
			0	0	0	0	0	0	0	0	0	0	0	Ö	Ô	0	ŏ	Õ	Õ	ŏ	Ŏ	90
			0	0	0	0	0	0 0	0	0	ŏ	5	ŏ	0	Õ	ŏ	ŏ	ō	ŏ	ŏ	Ö	104
			0	0	0	0	0	0	0	Ö	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	Ō	0	0	0	0	120
			0	Č	ŏ	ŏ	ŏ	Ö	ŏ	ŏ	ŏ	ō	Ö	Ŏ	0	0	0	0	0	0	0	139
			0	ŏ	Ö	ŏ	č	ŏ	.0	Ö	Ō	0	0	0	0	0	0	0	0	0	0	180
										•	CLUUK	ANGL	E									
	NODE	14	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	661.45																					CONE
	SOLAR		215																			ANGLE
	SHADON	IIAI	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33				.33				0
			.17		.33				0	0	0	0	0	.06	.06	.14	. 14	.08	.17	.11	.17	41
			0	0	0	.08			0	0	0	0	0	0	0	0	0	0	0	0	0	60 75
Ŧ			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
ယ္ပဲ			0	0	0	0	0	0	0	0	0 .	0	0	0	0	0	0	0	0 .	0	0	104
0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ö	0	ŏ	Ô	Ô	120
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ö	ŏ	ŏ	139
			0	0	0	0	0	0	0	0	0	0	0	0	Ö	Õ	ŏ	Ö	ŏ	ŏ	ŏ	180
			n	٥	0	0	0	U	U	v	•	~	v	~	•	•	-	-	-	-		

DATE 05/04/77 TIME 11.47.31. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

NODE	5	0	20	40	60	80	100	120	140	160	ANGL 180	E 200	220	240	260	280	300	320	340	360	
INFRA SHADOV																					CONE ANGLE
311400	* 1A	0	0	0	0	٥	0	0	a	0	0	0	0	0	0	0	0	0	n	0	0
		0	Ô	0	0	o o	0	0	0	n	Ö	ň	ŏ	ñ	ñ	ñ	ŏ	ñ	ñ	Ô	41
		1.00	•	•	•	0	0	0	0	Ô	Ô	ŏ	Õ	n	ŏ	Ö	Õ	1.00	1.00	1.00	60
			1.00		-	Ô	0	0	Õ	Č	ŏ	ŏ	ŏ	ŏ	Ö	Õ	1.00		1.00	1.00	75
		1.00			1.00	1.00	0	o o	Ô	Š	ŏ	ŏ	ŏ	ŏ	ŏ	1.00	1.00	1.00	1.00	1.00	90
		.67	.69	.78	.81	.81	.81	Ğ	ō	ō	ō	ŏ	ŏ.	ō	.44	.44	.50	.67	.67	.67	104
		.50	.56	.50	.58	.58	.58	.58	Ō	Ō	Ō	ō	ō	Ö	.03	.03	.17		.50	.50	120
		.17	.25	.31	.25	.31	.31	.25	.19	.11	Ō	ō	Ö	Ō	0	0	0	.17	.17	.17	139
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	. 0	0	0	0	0	180
									(CLOCK	ANGL	E									
NODE	5	O	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
SOLAR SHADO	w TA	BLE																			CONE ANGLE
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
-		1.00		1.00	0	0	0	0	0	0	0	0	0	0	0	0	0		1.00	1.00	60
<u>.</u>		1.00		1.00	1.00	0	0	0	0	0	0	0	0	0	0	0	1.00		1.00	1.00	75
		1.00	-			1.00	-	0	0	0	0	0	0	0	0	1.00	1.00		1.00	1.00	90
		.67		.78	.81	.81	.81	0	0	0	0	0	0	0	.44	.44	.50		.67	.67	104
		.50			.58	.58	.58	.58		0	0	0	0	0	.03	_	.17		.50	.50	120
		.17	.25	.31	.25	.31	.31	.25	.19	.11	0	0	0	0	0	0	0	.17	.17	.17	139
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

	NODE	15	0	20	40	60	80	100	120	140	CLOCK 160	ANGLI 180	E 200	220	240	260	280	300	320	340	360	
	INFRA SHADOW		31 F																			CONE ANGLE
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			ñ	Õ	Ô	Ŏ	Õ	Õ	Õ	0	Ó	0	Ó	0	0	0	0	0	0	0	0	41.
			1.00	1.00	1.00	ō	Ô	Õ	ŏ	ò	0	0	Ō	Ó	0	Ō	0	0	1.00	1.00	1.00	60
				1.00		_	Ŏ	ō	Õ	ō	ŏ	0	Ŏ	Ō	Ó	0	0	1.00	1.00	1.00	1.00	75
			1.00	1.00	1.00	1.00	1.00	ŏ	Ô	ŏ	ŏ	ō	Ö	Ö	Ö	Ō	1.00	1.00	1.00	1.00	1.00	90
			.67	.67	.67	.50	.44	.44	ŏ	ŏ	ŏ	ō	Ö	ŏ.	Ō	.81	.81	.81	.78	.69	.67	104
			.50	.50	.33	.17	.03	.03	ō	ō	ŏ	Õ	Ô	ŏ	.58	.58	.58	.58	.50	.56	.50	120
			.17	.17	.17	0 ''	0	٠.٠٠	ŏ	ŏ	ŏ	ō	.11	.19			.31	.25	.31	. 25	.17	139
			0	0 ' '	0 '	ŏ	0	Ô	Õ	ñ	Õ	Ô	0	0	0	0	0	0	٥	0	0	180
			•	•	-	•		•					_									
											CLOCK					•••	000		000	040	260	
	NODE	15	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	SOLAR																					
	SHADOV	V TA	RIF																			CONE ANGLE
	SHADOV	V TA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SHADOV	V TAI	BLE O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ANGLE
ᄪ	SHADOV	V TAI	0	ō	0	Ō	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	ŏ	Ö	0	ANGLE 0
#_2.	SHADOV	V TAI	0 0 1.00	0	0	0	Ŏ	0 0	0 0 0	•	•	0 0 0	0 0 0	0 0 0	-			-	0	0	0	ANGLE 0 41
H-33	SHADOV	V TA	0 0 1.00 1.00	0 1.00 1.00	0 1.00 1.00	0 0 1.00	0	0 0 0 0	0 0 0	Ö	ō	0 0 0 0	0 0 0 0	0 0 0 0	Ö	0 0 0 0 0	0	Ö	0 1.00 1.00	0 1.00 1.00	0 1.00 1.00	ANGLE 0 41 60
н_ 23	SHADOV	V TAI	0 0 1.00 1.00	0 1.00 1.00 1.00	0 1.00 1.00 1.00	0 0 1.00 1.00	0 0 1.00	Ö	0 0 0 0 0	0	0	0 0 0 0 0	Ö	0 0 0	0	0	0 0 1.00	0 1.00 1.00	0 1.00 1.00 1.00	0	0 1.00 1.00	ANGLE 0 41 60 75
H_30	SHADO	V TAI	0 1.00 1.00 1.00 .67	0 1.00 1.00 1.00	0 1.00 1.00 1.00	0 0 1.00 1.00 .50	0 0 1.00 .44	0.44	Ö	0 0	0	000000	0	0 0 0 0 0	0 0 0	0 0 .81	0 0 1.00 .81	0 1.00 1.00 .81	0 1.00 1.00 1.00 .78	0 1.00 1.00 1.00	0 1.00 1.00 1.00 .67	ANGLE 0 41 60 75 90 104
H_ 33	SHADOV	V TA	0 1.00 1.00 1.00 .67	0 1.00 1.00 1.00 .67 .50	0 1.00 1.00 1.00 .67	0 0 1.00 1.00 .50 .17	0 0 1.00 .44 .03	Ö	Ö	0 0 0	0	0000000	0 0	0 0 0 0 0 0 0	0 0 0 0	0 0 .81 .58	0 0 1.00 .81 .58	0 1.00 1.00 .81 .58	0 1.00 1.00 1.00 .78 .50	0 1.00 1.00 1.00 .69	0 1.00 1.00 1.00 .67 .50	ANGLE 0 41 60 75 90 104 120
H_30	SHADOV	N TAI	0 1.00 1.00 1.00 .67	0 1.00 1.00 1.00	0 1.00 1.00 1.00	0 0 1.00 1.00 .50	0 0 1.00 .44	0.44	Ö	0 0	0	00000000	0	0 0 0 0 0 0	0 0 0	0 0 .81	0 0 1.00 .81	0 1.00 1.00 .81	0 1.00 1.00 1.00 .78	0 1.00 1.00 1.00	0 1.00 1.00 1.00 .67	ANGLE 0 41 60 75 90 104

i	t	1

DATE	05/04/77	TIME	11.5	0.01.
	=SAMPLE CO W FACTOR G			

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

										(CLOCK	ANGL	<u> </u>									
	NODE	21	0	20	40	60	80	100	120		160	180		220	240	260	280	300	320	340	360	
	INFRA	RED																				CONE
	SHADOW	TA	BLE																			ANGL
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
			0 .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	90
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	104
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	120
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	139
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	180
											CLUUK	ANGL	E									
	NODE	21	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	SOLAR																					CON
	SHADOW	TA:	BLE																			ANGL
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
i			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60
2			0	0	0	0	0	0	0	O	0	0	0	0	0	0	0	0	0	0	0	75
,															1.00							90
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	104
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	120
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	139
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	180

H-3

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADUW FACTOR GENERATOR LINK

	NODE	22	0	20	40	60	80	100	120	140	CLOCK 160	ANGLI 180	200	220	240	260	280	300	320	340	360	
	TMED 1	550																				CONE
	INFRA																					ANGLE
	SHADOW	IAL	1 00	4 00	1 00	1 00	1 00	1 00	1 00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0
									0	0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	41
			1.00						0	Ô	ñ	Ô	Ô	ò	ō	0	1.00	1.00	1.00	1.00	1.00	60
			1.00			1.00			0	0	Ô	Ô	ŏ	Ď	Ô	Õ	1.00	1.00	1.00	1.00	1.00	75
				1.00					0	0	Ô	Ŏ.	Ö	ñ	ŏ	ŏ	1.00	1.00	1.00	1.00	1.00	90
			1.00			1.00			0	0	0	0	Ö	ŏ	ŏ	ň	1.00	1.00	1.00	1.00	1.00	104
				1.00					0	0	0	0	0	0	Ô	0	1 00	1 00	1.00	1.00	1.00	120
				1.00					0	0	0	0	0	0	0	0	1 00	1 00	1.00	1.00	1.00	139
				1.00					0	0	4 00	4 00	4 00	1.00	1 00	1.00			1.00			180
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
											0. 00v		_									
											CLOCK			000	240	260	280	300	320	340	360	
	NODE	22	0	20	40	60	80	100	120	140	160	180	200	220	240	200	200	300	320	J-10	-	
																						CONE
	SOLAR																					ANGLE
	SHADO	I TAE	BLE													4 00	4 00	1 00	1.00	+ 00	1.00	0
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	_			_	1.00	1.00	1.00	1.00	1 00	1 00	. 41
			1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1 00	60
#			1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0						75
3			1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0			1.00			90
			1.00	1.00	1.00	1.00	1.00	0	0	.0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	104
			1.00	1.00	1.00	1.00	1.00	0 -	0	0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	120
				1.00					0	0	0	0	0	0	0	0			1.00			
				1.00					0	0	0	0	0	0	0	0			1.00			139
								4 00	4 00	4 00	4 00	1 00	1 00	4 00	1 00	1.00	1.00	1.00	1.00	1.00	1.00	180

DATE 05/04/77 TIME 11.50.36. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN SHADOW FACTOR GENERATOR LINK CLOCK ANGLE NODE 100 120 140 160 180 200 220 240 260 280 300 320 340 360 INFRA RED CONE SHADOW TABLE **ANGLE** 1.00 0 1.00 0 1.00 0 O 1.00 0 1.00 0 1.00 0 1.00 0 CLOCK ANGLE NODE 80 100 120 140 160 180 200 220 240 260 300 320 340 360 SOLAR CONE SHADOW TABLE **ANGLE** H-35 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0

1.00 0

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - DRIGINAL RUN

											CLOCK	ANGLE	•									
	NODE	24	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	INFRA	RED																				CONE
	SHADOW		RIF																			ANGLE
	JIIADOII	, ,,,,		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0
			0	0	0	0	6				1.00							0	0	0	0	41
			ñ	Ô	ñ	Ô	ō	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	60
			Õ	ŏ	Ö	ŏ	ŏ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	75
			Õ	ŏ	ō	Ö	ō	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	90
			ŏ	ō	ō	ŏ	Ŏ				1.00				1.00			0	0	0	0	104
			ō	Ō	Ō	Ō	0				1.00				1.00			0	0	0	0	120
			ō	Ö	0	0	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	139
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	180
											CLOUK	ANGLE	Ξ									
	NCDE	24	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	SOLAR																					CONE
	SHADOW		21 E																			ANGLE
	SHADOR	1 1 1 1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0
			0	0	0	0	0				1.00							0	0	0	0	41
Η			õ	Ô	Õ	ŏ	ō	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	60
1			Ď	ō	0	Ō	Ö				1.00				1.00			0	0	0	0	75
2			ŏ	ō	ō	0	Ō	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	90
			Ô	ō	Ō	Ō	Õ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	104
			ō	ŏ	ō	Ö	Ō				1.00							0	0	0	0	120
			ō	Ó	Ö	0	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			0	0	0	0	139
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	180

ı	DATE ()5/	04/77	TIME	11.	52.11	•	TH	IERMAL	. RAD	OITAI	ANAL	YSIS	SYSTE	EM (TF	RASYS	CDC	6500,	/SCOPI	€ 3.4		PAGE
	MODEL=S						P=-1				SAMPI	E CAS	SE 1	- NF	PLOT/S	FCAL,	/FFCAI	_/GBC/	AL/RK	CAL -	- ORI	GINAL RUN
!	NODE	25	. 0	20	40	60	80	100	120		CLOCK 160		-	220	240	260	280	300	320	340	360	
	INFRA (CONE
	SHADOW	ΙA			4 00	4 00	4 00	4 00		4 00	4 60											ANGLE
						-						-			1.00			1.00		1.00		0
								1.00			-		-	0	0	0	0	0	0	0	1.00	41
								1.00					-	0	0	0	0	0	0	0	1.00	60
								1.00					-	0	0	0	0	0	0	0	1.00	75
								1.00					-	0	0	0	0	0	0	0	1.00	90
								1.00		-	_	-	-	0	0	0	0	0	0	0	1.00	104
								1.00						0	0	0	0	0	0	0	1.00	120
								1.00						0	0	0	0	0	0	0	1.00	139
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	180
											CLOCK	ANGL	E									
	NODE	25	0	20	40	60	80	100	120				_	220	240	260	280	300	320	340	360	
	SOLAR																					CONE
	SHADOW	TA	BLE																			ANGLE
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0
:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	1.00	41
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	Ö	0	Ō	0	Ō	Ŏ	Ö	1.00	60
1			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	Ō	0	Ö	0	Õ	ō	ŏ	1.00	75
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	Ō	0	0	0	0	ŏ	ō	1.00	90
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	Ō	0	Ō	0	0	Ŏ	ŏ	1.00	104
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0.	0	0	0	Ó	Ō	Ō	1.00	120
													_		_	_	_	-	-	-	• •	

0 0

0

1.00

139

180

E 20

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

	NODE	26	0	20	40	60	80	100	120	140	160	ANGLE	200	220	240	260	280	300	320	340	360	
	INFRA SHADOW	RED	3LE 1.00 1.00 0 0 0	1.00 1.00 0 0 0	1.00 1.00 0 0 0	1.00 1.00 1.00 0 0	1.00	1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00	1.00 1.00 1.00 0 0 0		1.00	1.00 1.00 0 0 0 0	1.00 1.00 0 0 0 0 0	CONE ANGLE 0 41 60 75 90 104 120 139 180
	NODE SOLAR SHADOW	26	0	20	40	60	80	100	120	140	CLOCK 160	180	200	220	240	260	280	300	320	340	360	CONE ANGLE O
н-38	ZUVDOW	IA	1.00 1.00 0 0 0 0	1.00 1.00 0 0 0		1.00			1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00	1.00	1.00	1.00	1.00		41 60 75 90 104 120 139

TOTAL TIME FOR SHADOW FACTOR TABLES 178.6

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 100100 FOR THE FF SEGMENT

CANNOT ADJUST FIELD LENGTH TO 100100 LEAVING FIELD LENGTH AT 077000 AND CONTINUING

DATE 05/04/77 TIME 12.14.48.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

FORM FACTORS AND COMBINED FORM FACTORS - USER INPUT AND DEFAULT PARAMETERS

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
FFACC	.0500	.0500	ORIENTATION ACCURACY PARAMETER	N/A
FFACCS	.1000	.1000	SHADOWING ACCURACY PARAMETER	N/A
FFMIN	1.0E-06	1.0E-06	PARAMETER TO ELIMINATE SMALL FORM FACTORS	N/A
FFNOSH	SHAD	SHAD	OVER RIDE SHADOWING PARAMETER	(SHAD.NOSH)
+FFPNCH	NO	NO	PARAMETER TO PUNCH FORM FACTORS	(YES.NO)
FFPRNT	YES	YES	FLAG FOR COMPREHENSIVE FF AND CM PRINT	(YES.NO.FF.CM.RB)
FFRATL	15.0	15.0	RATIO FOR USING SUB-NODE TECHNIQUE	N/A
FFCMB	NO	CORR	FLAG FOR COMBINING FORM FACTORS	(YES,NO.AUTO,CORR)

^{+ -}FFPNCH WILL DEFAULT TO -YES- ON CALCULATED VALUES IF THE -RSO- FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP==1 FORM FACTOR CALCULATION LINK.

DATE 05/04/77 TIME 12.32.19.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

NODE	AREA	ALPH	EMISS
NODE 1 2 3 4 11 12 13 14 5 15 21 22	AREA 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 2.06040 2.06040	900 .900 .900 .900 .900 .900 .900 .900	.900 .900 .900 .900 .900 .900 .900 .900
23	1.04040	.200	.900
23	1.04040	.200	.900 .900
24 25	2.06040 1.04040	.200	.900
26	2.05040	.200	.900

NUMBER OF NODES = 16 NUMBER OF SURFACES = 10

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI. OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE	I	NODE J	COMPUTATION	FIR(I,J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J.I) W/SHAD	FF(I,J) WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ	
	•	2	CAL	.214256	.214256	.214256	.214256	21/256	1.000000	1.000000	6.069	106	106	*
	1	2 3	CAL	.203695	.203695	.203695	.203695		1.000000	1.000000	1.352	16	16	-
	1	4	CAL	.214256	.214256	.214256	.214256		1.000000	1.000000	5.777	106	106	
	1	12	CAL	.033882	.033882	.033882	.033882		1.000000	1.000000	.226	4	4	
	i	13	CAL	.086031	.086031	.086031	.086031		1.000000	1.000000	.573	9	9	
	i	14	CAL	.039182	.039182	.039182	.039182		1.000000	1.000000	.214	4	4	
	i	5	CAL	.138020	.138020	.138020	.138020		1.000000	1.000000	1.349	16	16	
	i	15	CAL	.054683	.054683	.054683	.054683		1.000000	1.000000	.220	4	4	
	1	FF SUM		ROW CP T	-	5.847						•	·	
	•	1. 30	.3040	NOW CT 1		3.047								
	2	3	EQUIV	.214256	.214256	.214256	.214256	0.	1.000000	1.000000	.002	0	0	
	2	4	EQUIV	.214256	.214256	.214256	.214256	0.	1.000000	1.000000	.001	0	0	
	2	11	EQUIV	.033882	.033882	.033882	.033882	0.	0.	0.	.002	0	0	
Ħ	2	12	CAL	.069571	.069571	.069571	.069571	.069571	1.000000	1.000000	.555	9	9	
H-41	2	13	CAL	.033882	.033882	.033882	.033882	.033882	1.000000	1.000000	.214	4	4	
<u></u>	2	14	CAL	.033882	.033882	.033882	.033882	.033882	1.000000	1.000000	.216	4	4	
	2	5	CAL	.097637	.097637	.097637	.097637	.097637	1.000000	1.000000	3.142	69	69	*
	2	15	CAL	.034976	.034976	.034976	.034976	.034976	1.000000	1.000000	.216	4	4	
	2	FF SUM	1 = .9466	ROW CP T	IME =	4.419					•			
	3	4	EOUIV	.214256	.214256	.214256	.214256	0.	1.000000	1.000000	.001	0	0	
	3	11	EQUIV	.086031	.086031	.086031	.086031		0.	0.	.001	ŏ	ŏ	
	3	12	EQUIV	.033882	.033882	.033882	.033882		1.000000	1.000000	.001	ŏ	ŏ	
	3	14	CAL	.039182	.039182	.039182	.039182		1.000000	1.000000	.213	4	4	
	3	5	CAL	.051908	.051908	.051908	.051908		1.000000	1.000000	3.082	64	64	*
	3	15	CAL	.012000	.012000	212000	.012000		1.000000	1.000000	.216	4	4	
	3	FF SUN	1 = .8552	ROW CP T	IME =	3.575		-						
	-		,											
	4	11	EQUIV	.039182	.039182	.039182	.039182	0.	0.	0.	.002	0	. 0	
	4	12	EQUIV	.033882	.033882	.033882	.033882	0.	1.000000	1.000000	.001	0	0	
	4	13	EQUIV	.039182	.039182	.039182	.039182	0.	1.000000	1.000000	.001	0	0	
	4	5	CÁL	.109433	.109433	.109433	.109433	.109433	1.000000	1.000000	.518	9	9	
	4	15	CAL	.057045	.057045	.057045	.057045	.057045	1.000000	1.000000	.218	4	4	

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

N	ODE I	NOD	EJ	COMP	PUTATION	FIR(I.J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ
	4	FF	SUM		9215	ROW CP	TIME =	.817							
	11 11 11 11 11	FF	12 13 14 5 15 SUM	EQL	JIV	.214256 .203695 .214256 .054683 .138020 ROW CP	.203695 .214256 .054683 .138020	.214256 .203695 .214256 .054683 138020	.214256 .203695 .214256 .054683 .138020	0. 0. 0.	1.000000 1.000000 1.000000 1.000000	1.000000 1.000000 1.000000 1.000000	.001 0. .002 .001 .003	0 0 0 0	0 0 0 0
Ħ.	12 12 12 12 12	FF	13 14 5 15 SUM	EQI EQI EQI EQI	AIA AIA	.214256 .214256 .034976 .097637 ROW CP	.214256 .034976 .097637	.214256 .214256 .034976 .097637	.214256 .214256 .034976 .097637	0.	1.000000 1.000000 1.000000 1.000000	1.000000 1.000000 1.000000 1.000000	.001 .002 .001 .001	0 0 0	0 0 0
42	13 13 13 13	FF	14 5 15 SUM	EQI EQI	UIV UIV UIV .8552	.214256 .012000 .051908 ROW CP	.012000			0.	1.000000 1.000000 1.000000	1.00000 1.00000 1.00000	.002 .001 .001	0 0	0 0 0
	14 14 14	FF	5 15 SUN	EQ	UIV UIV .9215	.057045 .109433 ROW CP,	.109433	.057045 .109433 .028	.057045 .109433		1.000000	1.000000	.002 ò.	0	0
	5	FF	SUM	1 =	.5557	ROW CP	TIME =	.012							

DATE 05/04/77 TIME 12.41.56.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

FORM FACTOR CALCULATION LINK.

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NOD	EI	NODE J	COMPL	NOITATU	FIR()		FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J.I) W/SHAD	FF WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ
	15	FF SUM	= ,	.5557	ROW	СР	TIME =	.035					•		
	21	FF SUM	= 0	•	ROW	СР	TIME =	.002							
	22	FF SUM	= 0	•	ROW	СР	TIME =	.003	•						
	23	FF SUM	= 0		ROW	СР	TIME =	.003							
	24	FF SUM	= 0	•	ROW	СР	TIME =	.003							
H-43	25	FF SUM	= 0	•	ROW	СР	TIME =	.001							
	26	EE SIIM	= 0		р∩ы	CD	TIME =	.002							

DATE 05/04/77 TIME 12.42.00. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE 26

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

NODE I - FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I - FF SUM	NODE I - FF SUM
19840. 138552	29466 149215 24- 0.	38552 55557 25- 0.	49215 155557 26- 0.	21- 0.	22- 0.

TOTAL TIME FOR FORM FACTOR SEGMENT 25.241

TOTAL TIME SINCE START OF RUN 229.176

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 052400 FOR THE GB SEGMENT

DATE 05/04/77 TIME 12.42.00.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

GRAY BODIES COMPUTATION LINK.

GREY BODIES

DEFINITION

OPTIONS

VARIABLE CURRENT DEFAULT

VALUE NAME

NONE BOTH GBWBND

WAVEBAND DEFINITION PARAMETER

(IR,SOL,BOTH)

GRAY BODIES STORED FOR CONFIGURATION CASE1 IR

GRAY BODIES STORED FOR CONFIGURATION CASE1 SOL

TOTAL TIME TO COMPUTE GRAY BODIES

.92

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 050000 FOR THE RC SEGMENT

DATE 05/04/77 TIME 12.42.22. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

VARIABLE NAME	CURRENT VALUE	DEFAULT	RADIATION CONDUCTORS DEFINITION	OPTIONS
RKPNCH RKMIN IRKCN RKSP IRKNSP SIGMA RKAMPF RKTAPE RFRAC RFRAC RTOL NERN	PUN 1.0E-04 1 SPACE 999 1.71E-09 1.00 NO 7.0E-01	NO 0.0001 1 NO 32767 1.713E-9 1.0 NO 0.7 0.99	PUNCH/NO PUNCH PARAMETER FOR RADKS PARAMETER TO ELIMINATE SMALL RADK S INITIAL RADIATION CONDUCTOR ID NUMBER MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE SPACE NODE ID NUMBER STEFAN-BOLTZMANN CONSTANT AREA MULTIPLYING FACTOR PARAMETER TO OUTPUT TO BCD TAPE SIGNIFICANT RADIATION FRACTION DECIMAL FRACTION OF LAST RADK SAVED EFFECTIVE RADIATION NODE (ERN) NUMBER	(YES.NO) N/A N/A (SPACE.NO) N/A N/A N/A (TAPE.NO) (0. TO 1.) N/A N/A

DATE 05/04/77 TIME 12:42.23.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

SPECIAL RADIATION NODES

NONE

MESS SPECIAL NODES

PRIMARY SECONDARY

NONE

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

RADIATION CONDUCTOR (RADKS) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

PUNCHED	RADKS	_	1,	1,	2.	1.7130000E-09*	1.8345168E-01
PUNCHED		_	2.	1,	3,	1.7130000E-09*	1.7412713E-01
PUNCHED		-	3.	1.	4.	1.7130000E-09*	1.8349283E-01
PUNCHED		_	4.	1,	11,	1.7130000E-09*	7.1266147E-03
PUNCHED		_	5.	1.	12,	1.7130000E-09*	3.3361183E-02
PUNCHED		_	6.	1,	13.	1.7130000E-09*	7.3181656E-02
PUNCHED		_	7.	i.	14,	1.7130000E-09*	3.6719800E-02
PUNCHED		_	8.	1.	5.	1.7130000E-09*	1.1714795E-01
PUNCHED		_	9.	1,	15,	1.7130000E-09*	4.7474005E-02
		_	10.	2.	3.	1.7130000E-09*	1.8260203E-01
PUNCHED PUNCHED		_	11,	2.	4,	7130000E-09*	1.8326231E-01
		_	12,	2,	11.	1.7130000E-09*	3.3361183E-02
PUNCHED		_	13,	2,	12.	1.7130000E-09*	6.1032956E-02
FUNCHED		_	14.	2,	13,	1.7130000E-09*	3.2739448E-02
PUNCHED		_		2,	14,	1.7130000E-09*	3.2487749E-02
PUNCHED			15.	2,	5,	1.7130000E-09*	8.5323768E-02
PUNCHED		-	16.		15.	1.7130000E-09*	3.2227094E-02
PUNCHED		-	17.	2, 3,	4,	1.7130000E-09*	1.8249665E-01
PUNCHED		-	18.	3,	11.	1.7130000E-09*	7.3181656E-02
PUNCHED		-	19.	3, 3,	12,	1.7130000E-09*	3.2739448E-02
PUNCHED		_	20.		13.	1.7130000E-09*	5.9256032E-03
PUNCHED		-	21.	3, 3,	14.	1.7130000E-09*	3.5917767E-02
PUNCHED		-	22.	3. 3.	5.	1.7130000E-09*	4.9020079E-02
PUNCHED		_	23.	3,	15.	1.7130000E-09*	1.4120054E-02
PUNCHED		-	24.	4.	11.	1.7130000E-09*	3.6719800E-02
PUNCHED		-	25.	·	12.	1.7130000E-09*	3.2487749E-02
PUNCHED		_	26.	4.	13,	1.7130000E-09*	3.5917767E-02
PUNCHED		-	27.	4,	14.	1.7130000E-09*	5.3846610E-03
PUNCHED		_	28.	4,	5,	1.7130000E-09*	9.4445658E-02
PUNCHED		-	29.	4.	15.	1.7130000E-09*	4.9215811E-02
PUNCHED		-	30.	4.	12,	1.7130000E-09*	1.8345168E-01
PUNCHED		-	31.	11.	13.	1.7130000E-09*	1.7412713E-01
PUNCHED		-	32.	11,	14.	1.7130000E-09*	1.8349283E-01
PUNCHED		_	33.	11,	5.	1.7130000E-09*	4.7474005E-02
PUNCHED		-	34.	11,	15,	1.7130000E-09*	1.1714795E-01
PUNCHED		-	35.	11,	13,	1.7130000E-09*	1.8260203E-01
PUNCHED		-	36.	12, 12,	14.	1.7130000E-09*	1.8326231E-01
PUNCHED		-	37.		5.	1.7130000E-09*	3.2227094E-02
PUNCHED		-	38.	12,	15.	1.7130000E-09*	8.5323768E-02
PUNCHED		_	39.	12, 13,	14.	1.7130000E-09*	1.8249665E-01
PUNCHED		_	40.	13,	5.	1.7130000E-09*	1.4120054E-02
PUNCHED		-	41.	13,	15.	1.7130000E-09*	4.9020079E-02
PUNCHED		_	42.	14,	5,	1.7130000E-09*	4.9215811E-02
PUNCHED		-	43.	14.	15.	1.7130000E-09*	9.4445658E-02
PUNCHED	RAUKS	-	44,	1 79 9	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

DATE 05/04/77 TIME 12.42.29. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 KAUIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 1 - NPLOT/SFCAL/FFCAL/GBCAL/RKCAL - ORIGINAL RUN

PAGE

31

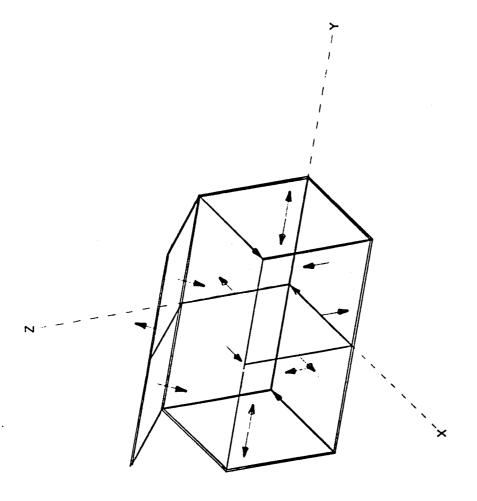
RADIATION CONDUCTOR (RADK) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

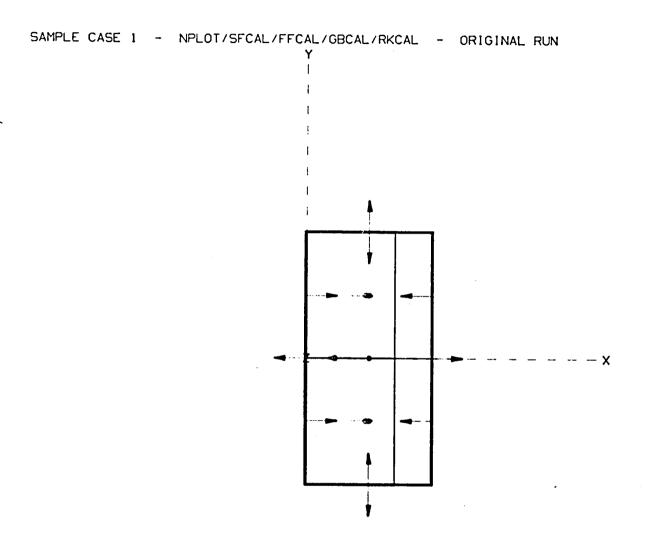
PUNCHED RADKS	5 -	45.	5.	15,	1.7130000E-09*	3.1183854E-03
PUNCHED RADKS	=	46.	1.	999,	1.7130000E-09*	2.9745274E-02
PUNCHED RADKS	- ·	47.	2,	999,	1.7130000E-09*	6.0037913E-02
PUNCHED RADKS	s -	48.	3,	999,	1.7130000E-09*	1.3734758E-01
PUNCHED RADKS	5 -	49.	4,	999,	1.7130000E-09*	8.3099733E-02
PUNCHED RADKS	s -	50.	11.	999.	1.7130000E-09*	2.9745274E-02
PUNCHED RADKS	s -	51,	12,	999,	1.7130000E-09*	6.0037913E-02
PUNCHED RADKS	s -	52.	13,	999,	1.7130000E-09*	1.3734758E-01
PUNCHED RADKS	s -	53,	14,	999,	1.7130000E-09*	8.3099733E-02
PUNCHED RADKS	S	54.	5,	999,	1.7130000E-09*	4.0349923E-01
PUNCHED RADKS	s -	55.	15,	999,	1.7130000E-09*	4.0349923E-01
PUNCHED RADKS	S 	56.	21,	999,	1.7130000E-09*	1.8543600E+00
PUNCHED RADK	s -	57.	22,	999,	1.7130000E-09*	1.8543600E+00
PUNCHED RADK	s -	58.	23.	999,	1.7130000E-09*	9.3636000E-01
PUNCHED RADK	s -	59.	24,	999,	1.7130000E-09*	1.8543600E+00
PUNCHED RADK	s -	60.	25.	999,	1.7130000E-09*	9.3636000E-01
PUNCHED RADK	s -	61,	26,	999,	1.7130000E-09*	1.8543600E+00

TOTAL TIME TO COMPUTE AND CONDENSE RADKS = .82

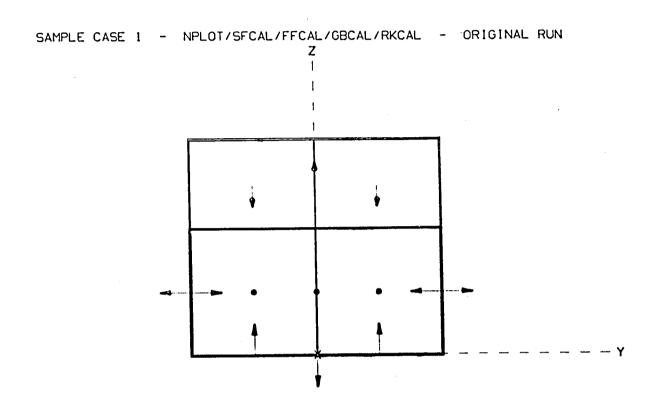
ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT



VIEW = 3-D SCALE = 1.2384 VIEW NUMBER = 1



VIEW = Z-AXIS SCALE = 1.2384 VIEW NUMBER = 1



VIEW = X-AXIS SCALE = 1.2384

VIEW NUMBER = 1

VIEW = Y-AXIS SCALE = 1.2384 VIEW NUMBER = 1

NASA/MARTIN MARIETTA THERMAL RADIATION ANALYSIS SYSTEM CDC6500/SCOPE 3.4

111111111111 1111111111111 11					
TTT				TRASYS II	
iii	RRRRRRRR				
TTT	RRRRRRRRR				
TTTTTT	RRR RRR RRR RRR				
	RRRRRRRRR				
	RRR RRR RRR RRR	AAAAAA			
	RRR RRR	AAAAAAA			
	RRR RRRR	AAAAAAAAA			
		AAA AAA			
		AAAAAAAAA			
		AAA AAA			
		AAA AAA	\$\$\$\$\$\$\$\$\$\$ \$\$\$\$\$\$\$\$\$\$\$		
		AAAAA AAAAA	SSS SS		
_			SSS		
			\$\$\$\$ \$\$\$\$\$\$ \$\$\$		
			SS SSS	YYYY YYYY	
			SSSSSSSSSS	YYY YYY	
			SSS SSSSSS	YYY YYY YYY YYY	
				YYYYY	
				YYY	
				YYY YYY	\$\$\$\$\$\$\$\$\$\$ \$\$\$\$\$\$\$\$\$\$\$\$
		,		YYYYYY	SSS SS
					SSS
					SSSSSSSSS SSS
					SS SSS

SSSSSSSSSS SSSSSSSSS

PRE-PROCESSOR EXECUTION

VERSION.MODIFICATION ... SC2E2 MODIFICATION DATE 05/09/77 DATE OF RUN 05/09/77 TIME OF RUN 19.56.37 JOB NUMBER RGEX1HG

```
DATE 05/09/77 TIME 19.56.38.
                                     THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION
                                                                                                           PAGE
                                                                                                                    1
MODEL = N/A
OPTION AND TITLE DATA BLOCKS
CARD ORGIN
                 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL
INPUT
                  HEADER OPTIONS DATA
INPUT
                  TITLE SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT
INPUT
                        RESTARTING SFCAL/FFCAL/GBCAL FROM SAMPLE CASE 1.
INPUT
                  С
                        COMBINING NODES IN RCCAL.
INPUT
                  С
                        CALCULATING DIRECT INCIDENT FLUXES USING SHADOW
INPUT
                  С
                        FACTOR TABLES FROM SAMPLE CASE 1.
INPUT
                  С
INPUT
                                    = SAMPLE
                        MODEL
INPUT
                        RSI
                                    = RSTSAM
INPUT
                        RSO
                                    = RSTSAM2
```

DATE 05/09/77 TIME 19.56.39. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

3

MODEL = SAMPLE TRASYS INFORMATION TO USER SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/DRBGEN/OPLOT

OPTIONS DATA -INFO- OPTIONS ARE ...

INFO = BUILD BUILD EXECUTION CARD

INFO = INFO HOW TO USE TRASYS INFO FILE

INFO = ITRCPP PREPROCESSOR TRACE FLAGS

INFO = RKCAL INFO. ON DELETION OF THE RKCAL LINK

INFO = STEP INFO. ON USING STEP CARDS

INFO = CCARDS INFO. ON TRASYS CONTROL CARDS

END OF TRASYS INFORMATION FILE

H-5

DATE 05/09/77 TIME 19.56.42.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE MODEL HISTORY SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

PAGE

MODEL NAME SAMPLE

MODEL TITLE SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

MOD RUN JOB RUN RUN RSI RSO RTI RTO CMERG EMERG BCDOU TRAJ USER1 USER2 LABEL NUMBER DATA TIME TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE

AA RGEX153 05/04/77 11.07.24 RSTSAM AB RGEX1HG 05/09/77 19.56.39 RSTSAM RSTSAM2

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

MODEL = SAMPLE SOURCE DATA EDIT DIRECTIVES

CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 234567	8 8 EDIT NO. DLD ED.	LI NU.	LABEL
	HEADER EDIT DATA			
****	*D,127,171	OLD-	127	AA
D	HEADER FORM FACTOR DATA	OLD-	128	AA
D	CENTER KNOWN ZERO FORM FACTORS AND EQUIVALENT FORM FACTORS FOR	CrD-	129	AA
D D	CCASE1.	OLD-	1 30	AA
D D	C .	OFD-	131	AA
D	FIG CASE1	OLD-	132	AA
D	NODEA 1,2,3,4,11,12,13,14,5,15,21,22,23,24,25,26,END	OLD-	133	AA
D	BOTH 21,ZERO	OLD-	134	AA
D	22, ZERO	OLD-	135	AA
D	23,ZERO	OLD-	136 137	A A A A
Ď	24,ZERO	0LD-	137	AA
D	25,ZERO	OLD-	139	AA
Ď	26, ZERO	0LD-	140	ÂÃ
D	1,1,0.	OLD-	141	AA
Ď	11,12,1,2	DLD-	142	AA
D	11,13,1,3	OLD-	143	AA
D	11,14,1,4	OLD-	144	AA
D	11,15,1,5	0LD-	145	AA
D	1,11,0.	OLD-	146	AA
H D	11,2,1,12	OLD-	147	AA
9 D	11,3,1,13	OLD-	148	AA
60 0	11,4,1,14	DLD-	149	AA
D	11,5,1,15	OLD-	150	AA
D	2,2,0.	OLD-	151	AA
D	2,3,1,2	OLD-	152	AA
D	2,4,1,4	OLD-	153	AA
D	12,13,2,3	OLD-	154	AA
D	12,14,2,4	OLD-	155	AA
D	12,15,2,5	OLD-	156	AA
D	12,3,2,13	OLD-	157	AA
D	12,4,2,14	OLD-	158	AA
D	12,5,2,15	CLD-	159	AA
D	3,3,0. 3,4,1,4	OLD-	160	AA
D	13,14,3,4	OLD-	161	AA
D	13.15.3.5	OLD-	162	AA
D	3,13,0.	OLD-	163	AA
. D	13,4,3,14	OLD-	164	AA
D	13,5,3,15	OLD-	165	AA
· D	4,4,0.	OLD-	166	AA
D	14.15,4,5	OLD-	167	AA
D	4,14,0.	OLD-	168	AA
D	14,5,4,15	OLD-	169	A A
D	5,5,0.	0LD-	170	A A A A
D	5,15,0.	GLD-	171	AA
****	*D.195	OLD-	195	AA
D	C DUTED THE CASE 1 CONFIGURATION	150	195	AB
I	CBUILD THE CASE1 CONFIGURATION FOR SFCAL/FFCAL/GBCAL RESTART	150		7.0
****	*D,198,203			

DATE 05/09/77 TIME 19.56.43. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

N PAGE

6

MODEL = SAMPLE SOURCE DATA EDIT DIRECTIVES SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

CARD O	RGIN 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 ED	T NO.	OLD EDIT	NO.	LABEL
D	C		OLD-	198	AA
D	CPLOT THE CASE 1 CONFIGURATION INDICATING THE ACTIVE		OLD-	199	AA
Ð	CSIDES OF THE NODES.		OLD-	200	AA
D	С		OLD-	201	AA
D	CALL NDATAS(0,0,0,YES,0)		OLD-	202	AA
D	L NPLOT		OLD-	203	AA
****	*D.205		010	203	00
D	CCALCULATE SHADOW FACTOR TABLES FOR SUBSEQUENT USE IN		OLD-	205	AA
ī	CREAD THE SHADOW FACTOR TABLES FROM RSI FOR USE IN	154	ULD	205	AB
****	*D.210	154			AB
D	CCALCULATE THE FORM FACTOR MATRIX.		OLD-	210	
7	CREAD THE FORM FACTOR MATRIX FROM RSI	159	010-	210	AA
****	*D.214	159			AB
D	CCALCULATE THE GRAY BODY MATRIX.		01.5		
,	CREAD THE GRAY BODY MATRICES FROM RSI	4.00	OLD-	214	AA
****	*D.218	163			AE
D	- · - · -				
****	CALL RKDATA(0,0,0,0,SPACE,999,0,0,0,0)		0LD-	218	AA
	*D,220,221				
D C	CCALCULATE AND PUNCH RADIATION CONDUCTORS.		OLD-	220	AA
# t	C		OLD-	221	AA
7 1	CCALCULATE AND PUNCH RADKS WITH COMBINED NODES	168			AB
6 F	C	169			AB
<u> н</u> 1	CALL RKDATA(0,0,0,0,SPACE,999,0,0,5HCASE2)	170			AB
****	*I,222				
I	c	172			AB
Ī	CDEFINE ORBIT AND VEHICLE ORIENTATION (CIRCULAR - PLANET-ORIENTED)	173			₽ B
I	C	174			AB
I	CALL ORBIT2(EAR,0,60.,0,0,100.*6080.,100.*6080.)	175			AB
I	CALL ORIENT(4HPLAN,1,2,3,300.,270.,0.)	176			AB
I	ORBGEN CIRP.O.,180.,2,AQ	177			AB
I	C	178			AB
I	CMAKE ORBIT PLOTS	179			AB
I	c	180			AB
I	CALL ODATAS(1,0,0,0,0,0,0)	181			AB
I	CALL ODATAS(2,0,0,0,90,,0,0)	182			AB
I	CALL DDATAS(3,0,0,0,0,180.,0,0)	183			AB
I	L OPLOT	184			AB
					75

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

	SURFACE DATA INPUT	I BLUCK	ı
	CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345078 8 2511 100 500 500 500 500 500 500 500 500	_
	561	The second of th	
	RSI		
	RSI	THE OUDSAGE DATA BLOCK TO HIGED IN SAMPLE CASES I INKUUGO D	
	RSI		
	RSI		
	RSI	CCASES. 6 OLD- 6 AA	
	RSI	C 7 OLD- 7 AA	
	RSI	BCS BOXINR 8 OLD- 8 AA	
	RSI	S SURFN = 1 9 DLD- 9 AA	
	RSI	TYPE = RECT 10 OLD- 10 AA	
	RSI	ACTIVE = BOTTOM 11 OLD- 11 AA	
	RSI	PROP = $0.9, 0.9$ 12 OLD- 12 AA	
	RSI	P1 = 1.0, 0.0, 1.0 13 OLD- 13 AA	
	RSI	P2 = 1.0, 0.0, 0.0	
	RSI	P3 = 1.0, 1.0, 0.0 15 OLD- 15 AA	
	RSI	COM = * INNER RIGHT FRONT * 16 OLD- 16 AA	
	RSI	S SURFN = $\frac{2}{17}$ OLD- 17 AA	
	RSI	TYPE = RECT 18 OLD- 18 AA	
	RSI	ACTIVE = BOTTOM . 19 OLD- 19 AA	
	RSI	PROP = 0.9,0.9	
	RSI	P1 = 1.0, 1.0, 1.0 21 OLD~ 21 AA	
	RSI	P2 = 1.0, 1.0, 0.0 22 DLD- 22 AA	
H-	RSI	P3 = 0.0, 1.0, 0.0 23 OLD- 23 AA	
φ	RSI	COM = * INNER RIGHT SIDE * 24 OLD- 24 AA	
2	RSI	S SURFN = 3 25 OLD- 25 AA	
	RSI	TYPE = RECT 26 DLD- 26 AA	
	R'S I	ACTIVE = TOP 27 AA	
	RSI	PROP = 0.9,0.9	
	RSI	P1 = 0.0, 0.0, 1.0 29 GLD- 29 AA	
	RSI	P2 = 0.0, 0.0, 0.0	
	RSI	P3 = 0.0, 1.0, 0.0 31 OLD- 31 AA	
	RSI	COM = * INNER RIGHT BACK * 32 OLD- 32 AA	
	RSI	S SURFN = 4 33 OLD- 33 AA	
	RSI	TYPE = RECT 34 AA	
	RSI	ACTIVE = TOP 35 AA	
	RSI	PROP = 0.9,0.9	
	RSI	p1 = 1.0, 1.0, 0.0	
	RSI	COM = * INNER RIGHT BOTTOM * 30 OLD 39 AA	
	RSI	BCS BOXINL, IMGBCS=BOXINR, NINC=10, IREFSF=1000 38 OLD— 39 OLD— 39 AA	
	RSI		
	RSI	THE PODECOING CARD IMAGES BOS BOXING IN REFERENCE PLANE 1000	
	RSI	TO COMPATE DOC DOVINE THE INTERIOR OF THE DUA WAS INPUT IN	
	RSI	CTHIS MANNER TO FACILITATE THE INPUT OF SAMPLE CASE 4 TO SHOW	
	RSI	CTHE USE OF "MESS" AND "ERN" NODES.	
	RSI		
	K31	THACTUC CUREACE 1) RCS (BD), GENERALING SURFACE (11) BCS (BC)	
		IMACING SUBFACE 2) RCS (BD), GENERATING SURFACE (12) BCS (BU)	
		THACKING SUBSACE 3) BCS (BD), GENERATING SURFACE (13) BCS (BU)	
		SUBSIGNED A) BCS (BO) GENERATING SURFACE (14) BCS (BO)	
	net	45 060- 45 04	
	RSI	40 000 40	
	RSI	P1 = 1.0, 0.0, 1.0 P2 = 1.0, 0.0, 0.0	
	RSI		

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

PAGE

SURFACE	DATA	INPUL	BLUCK

	,							
	CARD ORGIN	123456	78 1 2345678	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8	EDIT NO.	OLD EDIT	NO.	LABEL
	RSI		P3	= 0.0, 0.0, 0.0	48	OLD-	48	AA
	RSI		COM	= * IMAGING PLANE *	49	OLD-	49	AA
	RSI	BCS	LIDINR		50	OLD-	50	AA
	RSI	S	SURFN	= 5	51	OLD-	51	AA
	RSI		TYPE	= RECT	52	OLD-	52	AA
	RSI		ACTIVE	= BOTTOM	53	OLD-	53	AA
	RSI		PROP	= 0.9,0.9	54	OLD-	54	AA
	RSI		P1	= 1.0, 1.0, 0.0	55	OLD-	55	AA
	RSI		COM	= * INNER RIGHT LID *	56	OLD-	56	AA
	RSI	S	SURFN	= 15	57	OLD-	57	AA
	RSI	J	IMAGSF	= 5	56	OLD-	58	AA
	RSI		IREFSF	= 1000	59	OLD-	59	AA
	RSI		COM	= * INNER LEFT LID *	60	OLD-	60	AA
	RSI	BCS	BOXOUT		61	OLD-	61	AA
	RSI	S	SURFN	= 21	62	OLD-	62	AA
	RSI	3	TYPE	= BOX5	63	OLD-	63	AA
	RSI		ACTIVE	= OUT	64	OLD-	64	ÂÃ
	RSI		SHADE	= NO	65	OLD-	65	ÄÄ
	RSI		PROP	= 0.2,0.9	66	DLD-	66	AA
	RSI		P1	= 1.01,-1.01, 1.01	67	OLD-		AA
	RSI		P2	= 1.01, 1.01, 1.01	68	OFD-	67 68	AA
Ħ	RSI		P3	=-0.01, 1.01, 1.01	69	OFD-	68 69	AA
9	RSI		P4	=-0.01, 1.01,-0.01	70	OLD-		
င်း	RSI						70	AA
		200	COM	= * OUTER SURFACES *	71	OLD-	71	AA
	RS1	BCS	LIDOUT	- 00	72	OLD-	72	AA
	RSI	S	SURFN	= 26	73	OLD-	73	AA
	RSI		TYPE	= RECT	74	OLD-	74	AA
	RSI		ACTIVE	= TOP	75	OrD-	75	AA
	RSI		SHADE	= NO	76	OLD-	76	AA
	RSI		PROP	= 0.2,0.9	77	OLD-	77	AA
	RSI		P1	= 1.01,-1.01, 0.01	78	Oro-	78	AΑ
	RSI		P2	= 1.01, 1.01, 0.01	79	OLD-	79	AA
	RSI		P3	=-0.01, 1.01, 0.01	80	OLD-	80	AA
	RSI		COM	= * OUTER SURFACE OF LID *	81	OLD-	81	AA
	RSI	C			82	OLD-	82	AA
	RSI			BCS'S (MESSR AND MESSL) ARE ACTIVATED IN SAMPLE	83	OLD-	83	AA
	RSI		CASE 4 ONLY.		84	OLD-	84	AA
	RSI	C			85	OLD-	85	AA
	RSI	BCS	MESSR		86	Of D-	86	AA
	RSI	S	SURFN	= 101	87	OLD-	87	AA
	RSI		TYPE	= RECT	88	OLD-	88	AA
	RSI		ACTIVE	= TOP ·	89	OLD-	89	AA
	RSI		PROP	= 1.0,1.0	90	OFD-	90	AA
	RSI		P1	= 1.0, 0.0, 1.0	91	OLD-	91	AA
	RSI		P2	= 1.0, 0.0, 0.0	92	OLD-	92	AA
	RSI		P3	= 0.0, 0.0, 0.0	93	OLD-	93	AA
	RSI		COM	= * PRIMARY MESS NODE, RIGHT SIDE *	94	OLD-	94	AA
	RSI	BCS	MESSL		95	OLD-	95	AA
	RSI	S	SURFN	= 111	96	OLD-	96	AA
	RSI			= RECT	97	OLD-	97	AA
	RSI		ACTIVE	= BOTTOM	98	OLD-	98	AA

```
DATE 05/09/77 TIME 19.56.48. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION
                                                  SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT
MODEL = SAMPLE
SURFACE DATA INPUT BLOCK
                  12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL
CARD ORGIN
                                                                                                                            AΑ
                                                                                                        99 OLD-
                                     = 1.0,1.0
                         PROP
RSI
                                                                                                       100 DLD-
                                                                                                                      100
                                     = 1.0, 0.0, 1.0
                         Р1
                                                                                                                            AA
RSI
                                                                                                       101 OLD-
                                                                                                                      101
                                     = 1.0, 0.0, 0.0
                         P2
                                                                                                                            AA
RSI
                                                                                                       102 DLD-
                                                                                                                      102
                                     = 0.0.0.0.0.0
                         Р3
                                                                                                                            AA
RSI
                                                                                                                      103
                                                                                                            OLD-
                                                                                                       103
                                     = * PRIMARY MESS NODE, LEFT SIDE *
                                                                                                                      104
                                                                                                                            AA
RSI
                                                                                                       104
                                                                                                            OLD-
                                                                                                                            AA
RSI
                                                                                                                      105
                                                                                                       105
                                                                                                           OLD-
                  C----THE FOLLOWING BCS (LIDSP) IS ACTIVATED IN SAMPLE CASE 5 ONLY.
                                                                                                                      106
                                                                                                                            AA
RSI
                                                                                                       106 OLD-
RSI
                                                                                                           OLD-
                                                                                                                      107
                                                                                                       107
                  BCS
                         LIDSP
                                                                                                                            AA
                                                                                                                      108
RSI
                                                                                                       108
                                                                                                            OLD-
                                     = 200
                         SURFN
                                                                                                                            AA
                                                                                                                      109
RSI
                                                                                                       109
                                                                                                            DLD-
                                     = RECT
                         TYPE
                                                                                                                      110
                                                                                                                            AA
RSI
                                                                                                       110
                                                                                                           OLD-
                                     = BOTTOM
                         ACTIVE
                                                                                                                      111
                                                                                                                            AΑ
RSI
                                                                                                       111
                                                                                                            OLD-
                                     = 0.1.0.1
                         PROP
                                                                                                                      112
RSI
                                                                                                       112 OLD-
                                     = 0.8
                         SPRI
                                                                                                                      113
                                                                                                                            AA
RSI
                                                                                                            OLD-
                                                                                                       113
                                     = 0.8
                         SPRS
                                                                                                                            AA
RSI
                                                                                                       114 OLD-
                                                                                                                      114
                                     = 1.0, -1.0, 0.0
                         P1
                                                                                                                            AA
RSI
                                                                                                       115 OLD-
                                                                                                                      115
                                     = 1.0, 1.0, 0.0
                         P2
                                                                                                                            AA
RSI
                                                                                                       116 OLD-
                                                                                                                      116
                                     = 0.0, 1.0, 0.0
                         Р3
                                                                                                                      117
RSI
                                                                                                       117 OLD-
```

= * SPECULAR LID *

COM

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PAGE

RSI

DATE 05/09/77	TIME 19.56.51. THERMAL RADIATION ANALY	SIS SYSTEM (TRASYS)	CDC6500/SCOPE VERSION	PAGE	10	
MODEL = SAMPLE BCS DATA INPUT	BLOCK SAMPLE CASE	2 - SFCAL/FFCAL/	GBCAL/RCCAL/ORBGEN/OPLOT			
CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 23	345678 5 2345678 6 2	345678 7 2345678 8 EDIT NO	. OLD EDI	T NO.	LABEL
RSI	HEADER BCS DATA		118	OLD-	118	AA
RSI	BCS BOXINR		119		119	AA
RSI	BCS BOXINL		120	010-	120	AA
RSI	BCS LIDINR ,0.,0.,1.,0.,-45.,0.		121	OLD-	121	AA
RSI	BCS BOXOUT		122	OLD-	122	AA
RSI	BCS LIDOUT ,0.,0.,1.,0.,-45.,0.		123	DLD-	123	AA
RSI	BCS MESSR		124	OLD-	124	AA
RSI	BCS MESSL		125	OLD-	125	AA
RSI	BCS LIDSP ,0.,0.,1.,0.,-45.,0.		126	OLD-	126	AA

MODEL = SAMPLE CORRESPONDENCE	SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/URBGE DATA INPUT BLOCK	N/OPLOI			
CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678	8 EDIT NO.	OLD EDIT	NO.	LABEL
	UTANTO CONDECTORIDENCE DATA	127	OLD-	172	AA
RSI	HEADER CORRESPONDENCE DATA	128	OLD-	173	AA
RSI	C	129	OLD-	174	AA
RSI	CENTER CORRESPONDENCE DATA FOR CASE 2	130	OLD-	175	AA
RSI	C	131	OLD-	176	AA
RSI	FIG CASE2	· -			AA
	1 = 1.11,22	132	OLD-	177	
RSI	,	133	OLD-	178	AA
RSI	2 = 2,25 - 3,13,24	134	OLD-	179	AA

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

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	F 7 6	CACEO		131	CLD	170	
RSI	FIG	CASE2		132	OLD-	177	AA
RSI		1	= 1,11,22	133	OLD-	178	AA
RS1		2	= 2,2 5				AA
RSI		3	= 3.13,24	134	OLD-	179	
		4	= 4,14,21	135	OLD-	180	AA
RSI		-	= 7,17,11 = F 45 06	136	OLD-	181	AA
RSI		5	= 5,15,26	137	DLD-	182	AA
RSI		12	= 12,23	138	OLD-	183	AA
RSI	С					184	AA
RSI	C	-FNTER CORR	RESPONDENCE DATA FOR CASE 3 TO COMBINE FORM FACTORS	139	OLD-		
	č	2111211		140	OFD-	185	AA
RSI	<u> </u>			141	OLD-	186	AA
RSI	FIG	CASE3,FF		142	OLD-	187	AA
RSI		1	= 1,11,22	143	OLD-	188	AA
RSI		2	= 2,25	· · -			
		- 2	= 3,13,24	144	OFD-	189	AA
RSI		.5	= 4,14,21	145	OLD-	190	AA
RSI		4		146	OLD-	191	AA
RSI		5	= 5,15,26	147	OLD-	192	AA
RST		12	= 12,23	147	0.0		

DATE 05/09/77 TIME 19.56.52.

DATE 05/09/77 TIME 19.56.53. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

OPERATION DATA INPUT BLOCK (PASS 1)

CARD ORGIN

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

RSI

HEADER OPERATIONS DATA

148 OLD-193 AA

12

PAGE

+++++ OPERATIONS DATA BLOCK (PASS 1) COMPLETE +++++

DATE 05/09/77 TIME 19.56.55. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION PAGE

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```
SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT
MODEL = SAMPLE
OPERATION DATA INPUT BLOCK (PASS 2)
                 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO.
CARD ORGIN
                                                                                                                         AΑ
                                                                                                     149 GLD-
                                                                                                                         AΒ
                 C----BUILD THE CASE1 CONFIGURATION FOR SFCAL/FFCAL/GBCAL RESTART
                                                                                                     150
RSI
                                                                                                                   196
                                                                                                                         AA
                                                                                                     151 OLD-
INPUT
                                                                                                      -0
RSI
                                                                                                                         AA
                                                                                                                   197
                                                                                                     152 OLD-
                  STEP
PROG
                  BUILD CASE1, BOXINR, BOXINL, LIDINR, BOXOUT, LIDOUT
                                                                                                      -0
RSI
                        CALL BUILDC (BOXINR, 6HCASE1 )
                                                                                                      -0
PROG
                        CALL ADD (BOXINL)
                                                                                                      -0
PROG
                         CALL ADD (LIDINR)
                                                                                                      -0
PROG
                         CALL ADD (BOXOUT)
                                                                                                      -0
PROG
                                                                                                     153 OLD-
                                                                                                                   204
                                                                                                                         AΑ
                         CALL ADD (LIDOUT)
PROG
                                                                                                                         AB
                                                                                                     154
                  C----READ THE SHADOW FACTOR TABLES FROM RSI FOR USE IN
RSI
                                                                                                                    206
                                                                                                                         AA
                                                                                                     155 OLD-
                  C----SAMPLE CASE 2 IN THE CALCULATION OF DIRECT FLUXES.
INPUT
                                                                                                                    207
                                                                                                                         AA
                                                                                                     156 OLD-
RSI
                                                                                                                   208
                                                                                                                         AA
                                                                                                     157 OLD-
RSI
                                                                                                                   209
                                                                                                                         AA
                                                                                                     158 OLD-
                         SFCAL
                  L
RSI
                                                                                                                         AB
                                                                                                     159
                  С
RSI
                  C----READ THE FORM FACTOR MATRIX FROM RSI
                                                                                                                         AA
                                                                                                                    211
                                                                                                          OLD-
                                                                                                      160
INPUT
                                                                                                                         AA
                                                                                                                    212
                                                                                                      161
                                                                                                          OLD-
                  С
RSI
                                                                                                                         AA
                                                                                                                    213
                                                                                                          OLD-
                                                                                                      102
                         FFCAL
RSI
                                                                                                                         ÆΒ
                                                                                                      163
RSI
                  C----READ THE GRAY BODY MATRICES FROM RSI
                                                                                                                         AA
                                                                                                          0! 0-
                                                                                                                    215
                                                                                                      154
INPUT
                                                                                                                         AA
                                                                                                      165 OLD-
                                                                                                                    215
                  С
RSI
                                                                                                                         AA
                         CALL GBDATA(BOTH, 0, FF)
                                                                                                          OLD-
                                                                                                                    217
                                                                                                      166
RSI
                                                                                                                    219
                                                                                                                         AA
                                                                                                      167 OLD-
                  L
                         GBCAL
RSI
                                                                                                                          ΑĐ
                                                                                                      168
                  C
                  C----CALCULATE AND PUNCH RADKS WITH COMBINED NODES
 RSI
                                                                                                                          A B
                                                                                                      169
 INPUT
                                                                                                                          AB
                                                                                                      170
                  С
                         CALL RKDATA(0.0.0.0,SPACE,999.0.0.0,5HCASE2)
 INPUT
                                                                                                                          AA
                                                                                                      171 OLD-
                                                                                                                    222
 INPUT
                                                                                                                          AΒ
                                                                                                      172
                         RKCAL
 RSI
                                                                                                                          SA
                  C----DEFINE ORBIT AND VEHICLE ORIENTATION (CIRCULAR - PLANET-ORIENTED)
                                                                                                      173
 INPUT
                                                                                                                          ÆΒ
                                                                                                      174
 INPUT
                                                                                                                          AB
                                                                                                      175
                         CALL ORBIT2(EAR,0,60.,0,0,100.*6080.,100.*6080.)
 INPUT
                                                                                                                          AB
                                                                                                      176
 INPUT
                         CALL ORIENT (4HPLAN, 1, 2, 3, 300., 270., 0.)
                                                                                                       -0
 INPUT
                  -0
 PROG
                                                                                                                          AB
                                                                                                      177
 PROG
                   CORBGEN CIRP,0.,180.,2,AQ
                                                                                                       -0
 INPUT
                                                                                                       -0
 PROG
                                                                                                       -0
                   STEP 10000
 PROG
                                            0.
                                                                                                       -0
                          TRUEAN
 PROG
                                          180.000
                                                                                                       -0
                          TRUANE
 PROG
                                            0.
                          INAUST
                                                                                                       -0
 PROG
                                     = 0
                                                                                                       -0
                          IAI
 PROG
                                     = 0
                                                                                                       -0
                          IAS
 PROG
                                     = 6HPLSAVE
                                                                                                       -0
                          PLTYPE
 PROG
                          CALL DICOMP(0,0,0)
                                                                                                       -0
 PROG
                                                                                                       -0
                           DICAL
 PROG
                                     = 10000
                                                                                                       -0
                          NSPFF
 PROG
                                     = 6HPLREAD
                          PLTYPE
                                                                                                       -0
 PROG
                          CALL AQDATA(IAI, IAS, 0, 0, 0)
                                                                                                       -0
 PROG
                                                                                                       -0
                          AOCAL
 PROG
                                                                                                       -0
                   STEP 10001
 PROG
                                             90.000
                          TRUEAN
                                                                                                        -0
 PROG
                          CALL DICOMP(0,0,10000)
 PROG
                           DICAL
 PROG
```

```
-0
  PROG
                            CALL AQDATA(IAI, IAS, 0, 0, 0)
                                                                                                             -0
  PROG
                            AQCAL
  PROG
                    STEP 10002
                                                                                                             -0
                                               180,000
  PROG
                            TRUEAN
  PROG
                            CALL DICOMP(0.0.10000)
  PROG
                            DICAL
  PROG
                            CALL AQDATA(IAI, IAS, 0, 0, 0)
  PROG
                                                                                                             -0
                            AQCAL
  PROG
                     STEP 10003
                                                            GD TO 90400
                                                                                                             -0
  PROG
                            IF(SHADIN.LT.O.)
  PROG
                                       = SHADIN-0.1
                                                                                                             -0
                            TRUEAN
                                                                                                             -0
  PRCG
                            IF (TRUEAN.LT.TRUANI.OR.
                              TRUEAN.GT.TRUANF)
                                                                                                             -0
  PROG
                                                            GD TO 90000
  PROG
                            CALL DICOMP(0.4HZERO, 10000)
                                                                                                             -0
  PROG
                             DICAL
                                                                                                             -0
  PROG
                            CALL AQDATA(IAI, IAS, 0, 0, 0)
                                                                                                             -0
  PROG
                            AQCAL
  PROG
                     90000 CONTINUE
  PROG
                                                                                                             -0
                     STEP 10004
  PEGG
                                                                                                             -0
                                        = SHADIN+0.1
                            TRUEAN
  PROG
                            IF (TRUEAN.LT. TRUANI.OR.
                                                                                                             -0
                          1 TRUEAN.GT.TRUANF)
  PROG
                                                             GD TD 90100
  PROG
                            CALL DICOMP(0,0,10000)
  PROG
                                                                                                             -0
  PROG
                            CALL AQDATA(IAI, IAS, 0, 0, 0)
                                                                                                             -0
  PROG
                            AQCAL
  PROG
                     90100 CONTINUE
                                                                                                             -0
  PROG
                                                                                                             -0
                     STEP 10005
# PROG
                                                                                                             -0
                            TRUEAN
                                        = SHAGUT+0.1
O PROG
                            IF(TRUEAN.LT.TRUANI.OR.
  PROG
                                                             GD TD 90200
                          1 TRUEAN.GT.TRUANF)
  PROG
                                                                                                             -0
                            CALL DICOMP(0.4HZERO,10000)
  PROG
                                                                                                             -0
                             DICAL
  PROG
                            CALL AQDATA(IAI, IAS, 0, 0, 0)
                                                                                                             -0
  PROG
                                                                                                             -0
                            AQCAL
  PROG
                     90200 CONTINUE
                                                                                                             -0
  PROG
                                                                                                             -0
                     STEP 10006
                            TRUEAN
                                        = SHAOUT-0.1
  PROG
                                                                                                             -0
                            TRUEAN
                                        = SHAOUT-0.1
  PROG
                            IF (TRUEAN. LT. TRUANI.OR.
  PROG
                                                             GD TO 90300
                                                                                                             -0
                          1 TRUEAN.GT.TRUANF)
  PROG
                            CALL DICOMP(0.0,10000)
                                                                                                             -0
  PROG
                             DICAL
  PROG
                            CALL AQDATA(IAI, IAS, 0, 0, 0)
                                                                                                             -0
  PROG
                            AQCAL
                                                                                                             -0
  PROG
                     90300 CONTINUE
                                                                                                             -0
  PROG
                     90400
                                                                                                             -0
                           CONTINUE
  PROG
                                                                                                             -0
                            CALL QODATA (3HALL, 0, 0, 0, 0, 0, 0, 0)
  PROG
                            QOCAL
  PROG
                     С
  PROG
                     -0
  PROG
                                                                                                             -0
  INPUT
                                                                                                            178
                                                                                                                                AB
  INPUT
                                                                                                            179
                     C---- MAKE ORBIT PLOTS
                                                                                                                                AB
  INPUT
                                                                                                            180
                                                                                                                                AB
  INPUT
                            CALL ODATAS(1,0,0,0,0,0,0,0)
                                                                                                            181
                                                                                                                                AB
  INPUT
                            CALL UDATAS(2,0,0,0,0,90.,0,0)
                                                                                                            182
                                                                                                                                AB
  INPUT
                                                                                                            183
                                                                                                                                AB
                            CALL ODATAS (3,0,0,0,0,180.,0,0)
  INPUT
                            OPLOT
                                                                                                            184
                                                                                                                                AB
                                                                                                            185
                                                                                                                                AA
  RSI
                     END OF DATA
```

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

MODEL = SAMPLE PROCESSOR CORE ALLOCATION

THE FOLLOWING IS THE PROCESSOR CORE ALLOCATION FOR THOSE SEGMENTS WHICH WILL BE LOADED IN THIS EXECUTION (APPROX.) ...

THE PULLUWING IS THE PROCESSOR CORE MEEDOWATER.	
	OCTAL/DECIMAL
TRASYS (0) SEGMENT OPERATIONS DATA (NOT KNOWN AT THIS TIME) INITALIZATION SEGMENT FORM FACTOR SEGMENT SHADOW FACTOR SEGMENT ORBITAL PLOTTER SEGMENT DIRECT FLUX SEGMENT GRAY BODY SEGMENT ABSORBED Q-S SEGMENT -QO- SEGMENT RADATION CONDUCTOR SEGMENT	075000/ 31232 037600/ 16256 100100/ 32832 063700/ 26560 055600/ 23424 103000/ 34304 052500/ 21824 042100/ 17472 051700/ 21440
GRAY BODY DYNAMIC COMMON	003554/ 1900
GRAY BODY MINIMUM - MAXIMUM CORE	046255/ 19629 - 051005/ 21425
++CAUTION 1++ THE FFPROG SEGMENT APPEARS TO B	E TOO LONG FOR AMOUNT OF CORE (07500
+÷CAUTION 2++ THE DIPROG SEGMENT APPEARS TO B	E TOO LONG FOR AMOUNT OF CORE (0750)

DOOB) AVAILABLE

OOOB) AVAILABLE

MINIMUM CORE NEEDED FOR PROCESSOR EXECUTION 103000/ 34304 MAXIMUM CORE NEEDED FOR PROCESSOR EXECUTION 103000/ 34304

AMOUNT OF CORE THAT WILL BE USED BY PROCESSSOR . 103000/ 34304

DATE 05/09/77 TIME 19.57.01.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

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MODEL = SAMPLE

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

WRAP UP OF THE PRE-PROCESSOR

CAUTION MESSAGE(S) OCCUR FOLLOWING THE FIRST 100 OR LESS EDIT SEQUENCE NUMBER(S) LISTED BELOW ...

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE WRAP UP OF THE PRE-PROCESSOR SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

PRE-PROCESSOR ACCOUNTING INFORMATION	CP-SEC	PP-SE	DYM-STORAGE			
SOURCE EDITING	.710	3	515			
DOCUMENTATION DATA PRE-PROCESSING	0.	0	0			
QUANTITIES DATA PRE-PROCESSING	.010	0	266			
ARRAY DATA PRE-PROCESSING	0.	0	0			
SURFACE DATA PRE-PROCESSING (PASS 1)	1.152	0	64			
SURFACE DATA PRE-PROCESSING (PASS 2)			1141			
BCS DATA PRE-PROCESSING (7ASS 2)		1	186			
		ò	С			
FORM FACIOR DATA PRE-PROCESSING	•	ŏ	0			
SHADDW DATA PRE-PROCESSING	<u> </u>	ŏ	0			
FLUX DATA PRE-PROCESSING	-		101			
CORRESPONDENCE DATA PRE-PROCESSING			879			
OPERATIONS DATA PRE-PROCESSING	_		0			
SUBROUTINE DATA PRE-PROCESSING			Õ			
SEQUENTIAL TAPE INITIATION	.022	·	•			
TOTAL CP TIME FOR PRE-PROCESSOR	6.851	DECIMAL	SECONDS OR 0000	7 OCTAL	SECONDS	
TOTAL PP TIME FOR PRE-PROCESSOR	19	DECIMAL	SECONDS OR 0000	23 OCTAL	SECONDS	
MINIMUM DYNAMIC STORAGE NEEDED BY PRE-PROCESSOR	1141	DECIMAL	WORDS			
DYNAMIC STORAGE AVAILABLE TO PRE-PROCESSOR	3384	DECIMAL	WORDS			
MINIMUM CORE NEEDED FOR PRE-PROCESSOR EXECUTION	071000	OCTAL	WORDS			

NUMBER OF CAUTION MESSAGES .. 2

NORMAL TERMINATION BY PRE-PROCESSOR

H-7:

NASA/MARTIN MARIETTA THERMAL RADIATION ANALYSIS SYSTEM CDC6500/SCOPE 3.4

SSSSSSSSS

SSSSSSSSSS

SSSSSSSSS

SS

SSS SSS

SSS

SSS

TITITITITIT TTTTTTTTTTT TT TIT TT TTT TTT TTT TRASYS TIT RRRRRRRRR TTT RRRRRRRRRR TTTTTTT RRR RRR RRR RRR RRRRRRRRRR RRR RRR RRR RRR AAAAAAA RRR RRR AAAAAAAA RRR RRRR AAAAAAAAAA AAA AAA AAA AAA AAAAAAAAAA AAA AAA AAA AAA SSSSSSSSS AAA AAA SSSSSSSSSS AAAAA AAAAA SSS SS SSS SSSSSSSS SSS SSS YYYY YYYY SSSSSSSSSSSS YYY YYY SSSSSSSSSSSSS YYY YYY YYY YYY YYYYY YYY YYY YYY YYYYYY

PRE-PROCESSOR EXECUTION

LATEST LIBRARY MOD.VER NUMBER SL2E1
LAST LIBRARY MODIFICATION DATE 05/09/77

PAGE

DATE 05/09/77 TIME 19.58.03. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 PROCESSING OPERATIONS DATA

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

PAGE

2

NODE	BCS	AREA	ALPH	EMISS	SURF. TYPE	ACTIVE	COMMENTS
1	BOXINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT FRONT
2	BOXINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT SIDE
3	BOXINR	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BACK
4	BOXINR	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BOTTOM
11	BOXINL	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT FRONT
12	BOXINL	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT SIDE
13	BOXINL	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BACK
14	BOXINL	1.00000	.90 0	.900	RECTANGLE	TOP	INNER RIGHT BOTTOM
5	LIDINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT LID
15	LIDINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER LEFT LID
21	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
22	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
23	BOXOUT	1.04040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
24	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
25	BOXOUT	1.04040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
26	LIDOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACE OF LID

NODE, AREA, AND PROPERTIES ARRAYS HAVE BEEN WRITTEN ON THE -RSO- TAPE BY -BUILDC- (ACCESS NUMBER= -1)

ADJUSTING FIELD LENGTH TO 063700 FOR THE SF SEGMENT

H-75

3

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

RESTARTING -SFCAL - DATA FOR CONFIGURATION -CASE1 - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX153 DN 05/04/77 CLOCK ANGLE 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 NODE CONE SOLAR ANGLE SHADOW TABLE 0. 22.5 .10 0 1.00 0 0 .60 .40 .20 0 0 45.0 0 .20 0 O .10 .80 0 0 .30 .10 0 0 .30 0 .20 0 67.5 .10 0 .40 0 .10 .10 0 0 0 90.0 0 0 0 0 0 112.5 0 0 0 0 0 0 0 0 0 0 ٥ 0 ٥ 135.0 0 0 0 0 0 0 0 0 157.5 0 0 0 0 0 ٥ 0 0 ٥ 180.0 0 ٥ 0 0 0 CLOCK ANGLE 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 NODE CONE SOLAR ANGLE SHADOW TABLE .30 0. .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 22.5 .60 .60 .10 .40 .60 .60 0 0 ۵ 0 ٥ .60 0 0 0 .10 .60 .60 .40 .30 .30 45.0 .30 0 0 0 .10 67.5 .20 .40 .20 .20 .10 .10 0 0 0 0 90.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 112.5 ٠0 0 0 0 0 0 0 0 0 0 0 0 135.0 0 0 0 0 0 0 0 0 0 0 C 0 0 0 0 0 0 0 0 157.5 0 C 0 ٥ 0 0 0 0 0 0 0 0 0 0 0 180.0 ٥ 0 ٥ O

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

PAGE

	NODE	3	0	20	40	60	80	100	120	140	CLOCK 160	ANGL 180	E 200	220	240	260	280	300	320	340	360	
	SOLAR Shadow	TAB	LE																			CONE ANGLE
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
			.80	.70	.50	.30	.20	0	0	0	0	0	0	0	0	0	0	.20	.70	.80	.80	22.5
			.50	.60	.40	.30	.10	0	0	0	0	0	0	0	0	0	.20			.70	.50	45.0
			.30	.20	.20	.10	.10	0	0	0	0	0	0 -	0	0	0	.20				.30	67.5
			0	0	0	0	0	0	0	0	0	0	0	Ô	0	0	0	0	0	0	0	90.0
			0	0	0	0	0	Ō	0	0	0	0	Ó	ō	Ö	Ō	0	ŏ	ŏ	Õ	ō	112.5
			0	0	0	0	0	Ó	0	0	0	0	0	0	0	0	0	Ō	ō	Ô	ŏ	135.0
			0	0	0	0	0	Õ	0	0	0	0	0	ō	Ō	0	0	ō	Ö	Õ	Õ	157.5
			0	0	o	0	0	Ō	0	0	0	0	0	Ō	Ō	Ö	ō	ŏ	ŏ	Õ	Õ	180.0
																				•	-	
											CLOCK	ANGL	r.									
1	NODE	4	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	SOLAR SHADOW	ТАВ	LE						•													CONE ANGLE
			.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	0.
			.20	.10	.20	.10	.10	.10	.10	.10	0	0	0	0	0	.20	.50	.50	.30	.20	.20	22.5
i		1	0	0	0	0	0	0	0	0	0	0	0	0	0	.20	.20	.10	-	0	0	45.0
1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ñ	ō	67.5
1			0	0	0	0	0	0	0	0	0	0	0	Ō	0	Ō	Ö	ō	Ö	ŏ	ŏ	90.0
			0	0	0	0	Ó	0	0	0 .	0	0	0	Ō	Ō	ō	Ō	ō	ō	ō	Ö	112.5
		4	0	0	0	0	0 .	Ö	0	0	0	0	0	ō	Õ	Ō	Ō	ō	Ō	ō	ŏ	135.0
			0	0	0	0	Ó	Ŏ	Ō	0	Ö	0	Ö	ŏ.	Ō	ō	ō	ŏ	ō	Õ	ŏ	157.5
		1	0	0	0	0	0	Ō	0	0	0	0	0	Ö	0	Ō	0	Ŏ	ō	ŏ	ŏ	180.0

PAGE

5

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

	NODE	11	0	20	40	60	80	100	120	140	CLOCK 160	ANGLE	200	220	240	260	280	300	320	340	360	
	SOLAR																					CONE ANGLE
	SHADOW	TAE		4 00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ο.
			1.00	1.00	0	1.00	0	1.00		0	0	0	.10	.20	.40	.60	0	0	0	0	0	22.5
			0	0	0	Ô	Ö	.80	.10	Ö	Ō	0	.10	.20	.30	.30	0	0	0	0	0	45.0
			0	Ô	ŏ.	Ô	Õ	.40	.20		0	0	0	. 10	.10	. 10	0	0	0	0	0	67.5
			0	ñ	Õ	Ŏ	ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90.0
			ñ	Õ	ŏ	Ö	Ō	Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	112.5
			ō	ŏ	Ö	Ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135.0 157.5
			ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180.0
			Ó	0	0	0	0	0	0	0	0	0	0	0	0	0	U	U	U	U	U	100.0
											01.001/	ANCL	-									
	NODE	12	0	20	40	60	80	100	120	140	CLOCK 160	180	200	220	240	260	280	300	320	340	360	
	SOLAR																					CONE ANGLE
	SHADOW	TAI			20	20	.30	.30	,30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	0.
			.30	.30	.30	.30	.40	.10	-	0	0	0	0	0	0	0	0	0	0	0	.60	22.5
I			.60	.60 .30		.60	.60	.10		ŏ	ō	Ō	0	0	0	0	0	0	0	0	.30	45.0
1			.10	.10	.20	.20	.40	.20		ō	0	0	0	0	0	0	0	0	0	0	.10	67.5
$\tilde{\infty}$			٥٠	٥	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90.0
			ŏ	Ö	ō	ŏ	0	٥	0	0	0	0	0	0	0	0	0	0	0	0	0 -0	112.5 135.0
			õ	Ď	Ď	Ŏ	0	0	0	0	0	0	0	0	0	0		0	0	Ü	0	157.5
			Ó	ŏ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180.0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	U	U	v	v	•	

												_									
ODE	13	0	20	40	60	80	100	120	140	CLOCK 160		E 200	220	240	260	280	300	320	340	360	
OLAR																					CONE
MODAH	TAE		_	_	_		_	_	_	_	_	_	_	_	_	_					ANGLE
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ο.
		.80					0	0	0	0	0	0	0	0	0	.20	.30	.50		-	22.5
		.50						0	0	0	-	0	0	0	0	- 10	.30	.40	.60	.50	
			_			_	-	0	0	0	0	0	0	0	Ŏ	.10	.10			.30	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90.0
		Ö	ŏ	ŏ	0	Ö	0	Ö	ŏ	ŏ	ŏ	Ö	0	ŏ	0	0	0	0	0		112.5
		Ö	Ö	ŏ	ŏ	Ö	0	ŏ	ŏ	Ö	ŏ	ŏ	ŏ	0	ŏ	ŏ	0	0	0		135.0
		ŏ	ŏ	ŏ	ŏ	ŏ	Ö	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	0	Õ	ŏ	Ô	Õ	0	n	157.5 180.0
		_	-	-	-	_	_	•	-	, č	•	-	•	•	•	•	•	•	•	•	
										CLOCK	ANGLI	Ε									
IODE	14	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
OLAR																					CONE
HADOW	TAE	LE																			ANGLE
		.30	-			.30	.30	.30		.30	.30	.30			_	.30	.30	.30	.30	.30	0.
		.20	-	.30		.50			0	0	0	0	.10	.10	.10	.10	.10	.20	.10	.20	22.5
		0	0	0	.10	.20	.20		0	0	0	0	0	0	0	0	0	0	0	0	45.0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67.5
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90.0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		112.5
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		135.0
		0	0	0	0	0	O	0	0	0	0	0	0	0	0	0	0	0	0		157.5 180.0

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

										CLOCK	ANGL	E									
NODE	5	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
SOLAR SHADOW	TΛ	RIF		-																•	CONE ANGLE 0.
SHADON	• •	0	0	0	0	0	٥	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Ô	Õ	Ö	ŏ	Ŏ	ō	0	0	0	0	0	0	0	0	0	0	0	0	4 00	22.5 45.0
		1.00	1.00	1.00	Ō	0	0	0	0	0	0	0	0	0	0	0	0	1.00		1.00	57.5
		1.00		1.00	1.00	0	0	0	0	0	0	0 -	0	0	0	0	1.00	1.00	1.00	1.00	90.0
			1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0	1.00	1.00	.70	.70	.70	112.5
		.70	.70	.80	.80	.80	.80		0	Ō	0	0	0	0	.40	.40	.20	.30	.50	.50	135.0
		.50	.60	.50	.60	.60	.60			0	0	0	0	0	0	Ö	0.20	.20	.20	.20	157.5
		.20	.20	.30	.20	.30	.30	.20			0	0	C	0	Ô	ŏ	Ö	0	0	0	180.0
		0	0	0	0	0	0	0	0	0	U	U	v	J	·	•	•	-			
										CLOCK	ANGL	F									
NODE	15	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
SOLAR																					CONE ANGLE
SHADOW	T #	BIF									_	_	_	^	^	0	0	0	٥	0	0.
J	• • •	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.5
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ö	Ċ	1.00	•	1.00	45.0
H-		1.00	1.00			0	0	0	0	0	0	0	0	ŏ	ŏ	ō	1.00		1.00		67.5
·80		1.00			1.00		0	0	0	0	0	0	5	ŏ	ŏ	1.00	1.00				90.0
0		1.00				1.00		0	0	0	Ö	ŏ	ŏ	ŏ	.80		.80	.80	.70	.70	112.5
		.70					_	0	0	Ö	Ö	ŏ	ŏ	.60			.60	.50	.60		135.0
		.50				0	0	0	Õ	Ö	ŏ	.10	.20	-			.20	.30	.20	.20	157.5
		.20	.20	.20	0	Ö	0	ŏ	ŏ	ŏ	ō.	0	0	0	0	0	0	0	0	0	180.0

DATE 05/09/77 TIME 19.58.10. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT SHADOW FACTOR GENERATOR LINK CLOCK ANGLE NODE 1 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 INFRA RED CONE SHADOW TABLE ANGLE 0 0 0 0 .60 .40 .20 .10 0 0 0 1.00 0 22.5 .30 .30 .20 .10 0 .10 .80 0 0 0 45.0 .10 .10 0 0 .10 0 .20 .40 0 0 67.5 0 0 0 0 90.0 0 0 0 0 0 0 0 0 112.5 0 0 135.0

CLOCK ANGLE
NODE 2 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360

0

0

0

0

0

0

0

0

INFRA RED CONE SHADOW TABLE ANGLE .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30 ο. H-81 .60 0 0 0 0 .60 .10 . 40 .60 .60 .60 22.5 .30 0 0 0 0 .10 .60 .60 .40 .30 .30 45.0 .10 0 0 0 0 0 0 0 0 0 .20 .40 .20 .20 .10 .10 67.5 0 0 0 0 0 90.0 0 0 112.5 0 0 0 0 0 0 ٥ 0 0 135.0 0 0 ٥ 0 0 0 0 0 0 0 157.5

0

0

0

0

0

157.5

180.0

180.0

9

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

NODE	3		20	40	60	80	100	120	140	CLOCK 160	ANGLE	200	220	240	260	280	300	320	340	360	
																					CONE
INFRA																					ANGLE
SHADOW	TAS		_			0	_	0	0	0	0	0	٥	0	С	0	0	0	0	0	0.
		0	0	0	0	-	0	0	Ö	Ô	Ö	ō	ō	Ō	0	0	.20	.70	.80	.80	22.5
		.80	.70	.50	.30	.20	0	0	Ô	Ô	ō	ō	ō	0	0	.20	.70	.80	.70	.50	45.0
		.50	.60 .20	.40	.30	.10	Ö	ŏ	ŏ	Ğ	ō .	0	0	0	0	.20	.40	.30	.30	.30	67.5
		.30	0.20	0	0.10	0	0	ŏ	ŏ	ŏ	0	0	0	0	0	0	0	0	0	0	90.0
		0	0	Ö	0	ŏ	Ö	ō	Ŏ	Ō	0	0	0	0	0	0	0	0	0	0	112.5
		0	ŏ	ŏ	Ö	Ö	Õ	ō	0	0	0	0	0	0	0	0	0	0	0	•	135.0
		0	ŏ	ŏ	ŏ	ō	ō	Ō	0	0	0	0	0	0	0	0	0	0	0	0	157.5 180.0
		Ö	ŏ	0	Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	U	U	160.0
										CLOCK	ANGL	E									
NODE	4	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
		•																			CONE
INFRA		.																			ANGLE
SHADOW	V TA		.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30		0.
		.30			-						0	0	0	0	.20	.50	.50	.30	_	.20	22.5
뚜		0.20	0.10	0.20	0	0	0	0	0	0	0	0	0	0	.20	.20	.10		0	0	45.0 67.5
·82		ŏ	Ö	Ö	ŏ	ō	ŏ	0	0	0	0	٥	C	0	0	0	0	0	0	0	90.0
2		Õ	Ŏ	Ö	Ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112.5
		ŏ	ō ·	0	0	. 0	0	0	0	0	0	0	0	D	0	0	0	ŏ	0	0	135.0
		Ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ö	0	0	157.5
		Ó	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ŏ	Ô	Ô	180.0
		O	_	0		0		٥	0												

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

											CLOCK	ANGL	E								,	
	NODE	11	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	INFRA	RED																				CONE
	SHADOW	I TA	BLE																			ANGL
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Ο.
			0	0	0	0	0	1.00	0	0	0	0	.10	.20	.40	.60	0	0	0	0	0	22.5
			0	0	0	0	0	.80	.10	0	0	0	.10	.20	.30	.30		0	0	0	0	45.0
			0	0	0	0	0	.40	.20	0	0	0	0	.10	.10	.10	0	0	0	0	0	67.5
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90.0
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112.5
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135.0
			Ó	0	0	0	0	Ó	0	0	0	0	0	0	0 .	0	0	0	0	0	0	157.5
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180.0
											CLOCK	ANGL	<u>.</u>									
	NODE	12	0	20	40	60	80	100	120	140	160	180	2:00	220	240	260	280	300	320	340	360	
	INFRA	RFD																				CONE
	SHADOV																					ANGL
			.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	0.
			.60	-		.60	.40	.10		0	0	0	0	0	0	0	0	0	0	0	.60	22.5
Ŧ			.30			.60	.60	.10		Ō	Ö	Ŏ	0	Č	Ō	Ó	Ó	Ō	ō	Ŏ	.30	45.0
ထ			.10	.10	.20	.20	.40	.20		0	0	0	0	0	0	0	0	0	Ō	ō	.10	67.5
w)		0	0	0	0	0	0	ā	Ò	Ô	Ō	0	Õ	Ö	0	0	0	Ò	ŏ	0	90.0
			ō	ŏ	ō	ŏ	Ö	ō	ō	ō.	ō	Ō	Ó	ō	Ŏ	Ö	Ō	ŏ	ŏ	Ö	Ŏ	112.5
			ō	Õ	ō	ŏ	Ö	o ·	o o	Ö	ō	Ō	0	ō	Ö	Ö	Ō	Ŏ	Õ	ŏ	ō	135.0
			õ	ŏ	ō	ŏ	ŏ	Ö	ŏ	ŏ	Ŏ	ŏ	Ó	Ŏ	ŏ	ŏ	ō	ŏ	ŏ	ŏ	õ	157.5
			Õ	ŏ	Ô	ŏ	Õ	Ô	ō	Ŏ	Õ	Ó	Ò	ó	ō	Ó	Ŏ	Õ	ŏ	ŏ	Ô	180.0

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

NODE	13	0	20	40	60	80	100	120	140	CLOCK 160	ANGLI 180	200	220	240	260	280	300	320	340	360	CONE
INFRA SHADOW		.80 .50 .30 0	.70	0 .70 .80 .30 0 0	0 .20 .70 .40 0 0			0 0 0 0 0 0 0 0 0	000000000	0 0 0 0 0 0 0 0	00000000	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 .20 .10 .10 0 0	0 .30 .10 0 0 0	0 .50 .40 .20 0 0 0	.60		ANGLE 0. 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0
NODE	14	0	20	40	60	80	100	120	140	CLOCK 160	ANGL 180	E 200	220	240	250	280	300	320	340	360	CONE
INFRA SHADOV H - 804		30 .20 0 0 0 0				.50	.20	0	.36	0 .30 0 0 0 0 0 0	.30	.30	.30			.30 .10 0 0 0 0 0	.30 .10 0 0 0 0 0			_	ANGLE 0.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP==1 SHADOW FACTOR GENERATOR LINK

	NODE	5	0	20	40	60	80	100	120	140	CLOCK 160	ANGL 180	E 200	220	240	260	280	300	320	340	360	
	INFRA I																					CONE
	SHADOW	IA		_	^		^	_	•	^		•		_			•		_	_	_	ANGLE
			0	0	0	0	0	0	0	U	0	0	0	0	0	0	0	0	0	0	0	٥.
			0	0	0	0	0	U	0	0	0	0	0	0	0	0	0	0	0	0	0	22.5
				1.00			0	0	0	0	0	0	0	0	0	0	0	0		1.00		45.0
			1.00			1.00		0	0	0	0	0	0	0	0	0	0	1.00		1.00		67.5
			1.00			1.00		-	0	0	0 ′	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	90.0
			.70	.70	.80	.80			0	0	0	0	0	0	0	.40	. 40	.50	.70	.70	.70	112.5
			.50								0	0	0	0	0 .	0	0	.20	.30	.50	.50	135.0
			, 20	.20	.30	.20	.30	.30	.20	.20	.10	0	0	0	0	0	0	0	.20	.20	. 20	157.5
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180.0
											CLOCK	ANGI	E									
	NODE	15	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	
	THEOA I																					
	INFRA I																					CONE
	311200%	IM		^	^	^			^	•	^	^	^		^	•	_			_	_	ANGLE
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.
=			1 00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.5
0			1.00		1.00	-	0	0	0	0	0	0	0	0	0	0	0	0		1.00		45.0
Л						1.00		0	0	0	0	0	0	0	0	0	0			1.00		67.5
			1.00	_		1.00		_	0	0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	90. 0
			.70	.70	.70			.40	0	0	0	0	0	0	0	.80	.80	.80	.80	.70	.70	112.5
			.50	.50			0	0	0	0	0	0	0	0	.60	.60	.60	.60	.50	.60	.50	135.0
			.20	.20	.20	0	0	0	0	0	0	0	.10	.20	.20	.30	.30	.20	.30	.20	.20	157.5
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180.0

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

NODE	2	!1	0	20	40	60	80	100	120		160 LOCK	ANGLE	200	220	240	260	280	300	320	340	360	50115
SOLAF SHADO			0 0 0 0 1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0 0 0 1.00 1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	CONE ANGLE 0. 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0
NODE	:	22	0	20	40	60	90	100	120	140	CLOCK 160	ANGL' 180		220	240	260	280	300	320	340	360	CONE
SOLA SHAD H-86			1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	000000	0 0 0 0 0 0	0 0 0 0 0 0	1.00 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	00000	000000	1.00 0 0 0 0 0	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00	1.00 1.00 1.00 1.00 1.00 1.00	ANGLE 0. 22.5 45.0 67.5 90.0 112.5

0

0

157.5

14

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL-CAMPLE CONFIG=CASE1 STEP==1 SHADOW FACTOR GENERATUR LINK

ı	NODE	25	0	20	40	60	80	100	120	140	160		200	220	240	260	280	300	320	340	360	CONE
	SOLAR SHADOW		1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	000000	000000	0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	1.00 1.00 1.00 1.00 1.00 1.00	ANGLE 0. 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0
	NODE	26	0	20	40	60	80	100	120	140	160	ANGLE 180	200	220	240	260	280	300	320	340	360	
	SOLAR SHADOW	TAE	1.00	1.00 1.00 0 0 0		1 00	1.00	1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00	1.00 1.00 1.00 1.00	1.00	1.00	1.00 1.00 0 0 0		0 0 0 0 0	1.00 1.00 0 0 0 0	CONE ANGLE 0. 22.5 45.0 67.5 90.0 112.5 135.0 157.5

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

	SIIAUUW	FA	510K (3514547	HIOR	LINK																
											21.004	ANCL	-									
	NODE	2 i		20	40	60	80	100	100	140	CLOCK	180	_	220	240	260	280	300	320	340	360	
	NODE	21	J	20	40	00	80	100	120	140	100	100	200	220	240	200	2.00	300	320	340	360	
	INFRA																					CONE
	SHADOW	TA	BLE							_	_	_	_	_	_	_	_	_	_	_	_	ANGLE
			0	0	0	0	0	0	0	0	0	0	0	0 .	0	0	0	0	0	0	0	0.
			0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	22.5
			0	0	0 .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45.0
			0	0	0	0	0	0	0	0 .	0	0	0	0	0	0	. 0	0	0	0	0	67.5
								1.00														90.0
								1.00														
																						135.0
																						157.5 180.0
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100.0
											CLOCK	ANGL	-:									
	NODE	22	0	20	40	60	80	100	120		160	180		220	240	260	280	300	320	340	360	
	INFRA	RED																				CONE
	SHADOW		BLE																			ANGLE
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.
Į				1.00					0	0	0	0	0	0	0	0				1.00		22.5
\$			1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	45.0
õ			1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	67.5
			1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0				1.00		90.0
			1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	0	0				1.00		
				1.00					0	0	0	0	0	0	0	0	-					135.0
				1.00					0	0	0	0	C	0	0	0						157 .5
			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	180.0

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK

NO	DDE	23	0	20	40	60	80	100	120	140	CLOCK 160	ANGLE	200	220	240	260	280	300	320	340	360	
	NFRA F	TAB	1.00 1.00 1.00 1.00 1.00 1.00 1.00	C O O O O	0 0 0 0 0 0 0 0	1.00 0 0 0 0 0 0	1.00 0 0 0 0 0	1.00 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0	1.00 0 0 0 0 0 0 0	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1 00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	CONE ANGLE 0. 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0
N	ODE	24	0	20	40	60	80	100	120	140	CLOCK 160	ANGLE 180	200	220	240	260	280	300	320	340	360	
	NFRA HADOW		1.00 0 0 0 0 0	1.00	0 0 0 0 0 0	1.00 0 0 0 0 0 0	00000	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	00000	00000	00000	1.00 0 0 0 0 0 0	0 0 0 0 0 0 0	CONE ANGLE 0. 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0

DATE 05/09/77 TIME 19.58.16. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 SHADOW FACTOR GENERATOR LINK SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

NODE	25	0	20	40	60	80	100	120	140		ANGLE	E 200	220	240	260	280	300	320	340	360	
	A RED OW TA	BLE																			CONE ANGLE
			1.00										1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.
			1.00										0	0	0	0	0	0	0	1.00	22.5
			1.00							_			0	0	0	0	0	0	0	1.00	45.0
			1.00			_		-					0	0	0	0	0	0	0	1.00	67 .5
			1.00	-								-	0	0	0	0	0	0	0	1.00	90 .0
			1.00			-						-	0	0	0	0	0	0	0	1.00	112.5
			1.00										0	0	0	0	0	0	0		135.0
			1.00										0	0	0	0	0	0	0		157.5
		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	180.0
										רוטכג	ANGLE	=									
NODE	26	0	20	40	60	80	100	120		160	180	200	220	240	260	280	300	320	340	360	
_		-				•	,	, 2, -					2-0		200	200	300	320	340	360	
	A RED OW TA																				CONE ANGLE
		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.
Ħ			1.00																		22.5
1		0	0	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	45.0
91		0	0	0	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	0	0	Ō	67.5
_		0	0	0	0	0	1.00								1.00	0	0	0	0	0	90.0
		0	0	0	0	0	0	1.00					1.00		0	0	0	0	,0	0	112.5
		0	0	0	0	0	0	0	1.00	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	135.0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	157.5
		0	O	O	0	0	0	0	0	O	0	0	0	0	0	0	0	0	0	0	180.0

TOTAL TIME FOR SHADOW FACTOR TABLES 4.3

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 100100 FOR THE FF SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 05/09/77 TIME 19.58.19.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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MODEL=SAMPLE CONFIG=CASE1 STEP==1 FORM FACTOR CALCULATION LINK.

FORM FACTORS AND COMBINED FORM FACTORS - USER INPUT AND DEFAULT PARAMETERS

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPT1ONS
FFACC FFACCS FFMIN FFNOSH +FFPNCH FFPRNT FFRATL FFCMB	.0500 .1000 1.0E-06 SHAD NO YES 15.0	.0500 .1000 1.0E-06 SHAD NO YES 15.0 CORR	ORIENTATION ACCURACY PARAMETER SHADOWING ACCURACY PARAMETER PARAMETER TO ELIMINATE SMALL FORM FACTORS OVER RIDE SHADOWING PARAMETER PARAMETER TO PUNCH FORM FACTORS FLAG FOR COMPREHENSIVE FF AND CM PRINT RATIO FOR USING SUB-NODE TECHNIQUE FLAG FOR COMBINING FORM FACTORS	N/A N/A N/A N/A (SHAD,NOSH) (YES,NO) (YES,NO,FF,CM,RB) N/A (YES,NO,AUTO,CORR)

+ -FFPNCH WILL DEFAULT TO -YES- ON CALCULATED VALUES IF THE -RSO- FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

RESTARTING -FFCAL - DATA FOR CONFIGURATION -CASE1 - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX153 ON 05/04/77

H-92

DATE 05/09/77 TIME 19.58.19. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

NODE ALPH EMISS AREA 1.00000 .900 .900 1.00000 .900 .900 1.00000 .900 .900 1.00000 .900 .900 11 1.00000 .900 .900 12 1.00000 .900 .900 13 1.00000 .900 .900 14 1.00000 .900 .900

1.00000 .900 .900 15 1.00000 .900 .900 2.06040 .200 .900 2.06040 .200 .900 1.04040

23 .200 .900 24 2.06040 .200 .900 25 1.04040 .200 .900 2.06040 26 .200 .900

21

22

NUMBER OF NODES = 16 NUMBER OF SURFACES = 16

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA) (UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)

(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE I	NODE J	COMPUTATION	FIR(I,J)	FIR(J,I)	FSOL(I,J)	FSOL(J,I)	FF(I,J)	SHAD.IR	SHAD. SOL	CP TIME	NEI	NEJ	
			W/SHAD	W/SHAD	W/SHAD	W/SHAD	WO/SHAD	FACTOR	FACTOR	(SEC)			
1	2	RSI	.214256	.214256	.214256	.214256	.214256	1.000000	1.000000	0.	0	0	UN
1	3	RSI	.203695	.203695	.203695	.203695	.203695	1.000000	1.000000	Ŏ.	ň	ŏ	UN
1	4	RSI	.214256	.214256	.214256	.214256	.214256		1.000000	0.	Õ	ŏ	UN
1	12	RSI	.033882	.033882	.033882	.033882	.033882		1.000000	0.	Ŏ	_	-
1	13	RSI	.086031	.086031	.086031	.086031	.086031	1.000000	1.000000		0	0	UN
1	14	RSI	.039182	.039182	.039182	.039182		1.000000	1.000000	0.	Ŏ	0	UN
1	5	RSI	.138020	.138020	.138020	.138020		1.000000	1.000000	٥.	0	. 0	UN
1	15	RSI	.054683	.054683	.054683	.054683		1.000000	_	0.	0	0	UN
1	FFSUM			IME =	.083	.054005	. 034003	1.000000	1.000000	0.	0	0	UN
2	3	RSI	.214256	.214256	.214256	.214256	.214256	1.000000	1.000000	0.	0	0	UN
2	4	RSI	.214256	.214256	.214256	.214256		1.000000	1.000000	o.	ŏ	ŏ	UN
2	11	RSI	.033882	.033882	.033882	.033882	.033882		0.	0.	ő	ő	
2	12	RSI	.069571	.069571	.069571	.069571		1.000000	1.000000	_	0		UN
2	13	RSI	.033882	.033882	.033882	.033882		1.000000	1.000000	0.	Ū	0	UN
2	14	RSI	.033882	.033882	.033882	.033882		1.000000		0.	0	0	UN
2	· . 5	RSI	.097637	.097637	.033602	.033662			1.000000	0.	0	0	UN
-	_	11.0.1	.00/00/	.057037	.091031	.09/03/	. 09/63/	1.000000	1.000000	0.	0	٥	UN

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

(* -INDICATES NUDE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE	1	NODE J COMPUTATION	FIR(I,J) FIR(J,I) W/SHAD W/SHAD	FSOL(I,J) W/SHAD	FSOL(J.I) W/SHAD	FF(I,J) SHAD.IR WO/SHAD FACTOR	SHAD.SOL FACTOR	(SEC)	NEI	NEJ	
	2	15 RSI FFSUM = .9466	.034976 .034976 ROW CP TIME =	.034976 .088	.034976	.034976 1.000000	1.000000	0.	0	0.	UN
			0140EG	.214256	.214256	.214256 1.000000	1.000000	0.	. 0	0	UN
	3	4 RSI	.214256 .214256	.086031	.036031	.086031 0.	0.	o.	0	0	UN
	3	11 RSI	.086031 .086031 .033882 .033882	.033882	.033882	.033882 1.000000	1.000000	0.	0	0	UN
	3	12 RSI		.039182	.039182	.039182 1.000000	1.000000	0.	0	0	UN
	3	14 RSI		.051908	.051908	.051908 1.000000	1.000000	0.	0	0	UN
	3	5 RSI		.012000	.012000	.012000 1.000000	1.000000	ο.	0	0	ÜN
	3	15 RSI		.047		•••					
	3	FFSUM = .8552	ROW CP TIME =	.047							
					020100	.039182 0.	0.	0.	0	0	UN
	4	11 RSI	.039182 .039182	.039182	.039182	.033882 1.000000	1.000000	0.	Ö	0	UN
_	4	12 RSI	.033882 .033882	.033882	.039182	.039182 1.000000	1.000000	0.	Ó	0	UN
F -	4	13 RSI	.039182 .039182	.039182	.109433	.109433 1.000000	1.000000	0.	0	0	UN
.94	4	5 RSI	.109433 .109433	.109433	-	.057045 1.000000	1.000000	0.	0	0	UN
4	4	15 RSI	.057045 .057045	.057045	.057045	.057045 1.000000	1.000000	٠.	_		
	4	FFSUM = .9215	ROW CP TIME =	.043	•						
						014050 4 000000	4 000000	0.	0	. 0	UN
	11	12 RSI	.214256 .214256	.214256	.214256	.214256 1.000000	1.000000	0.	ŏ	ō	UN
	11	13 RSI	.203695 .203695	.203695	.203695	.203695 1.000000	1.000000	0.	ŏ	ŏ	UN
	11	14 RSI	.214256 .214256	.214256	.214256	.214256 1.000000	1.000000		ŏ	ŏ	UN
	11	5 RSI	.054683 .054683	.0 5468 3	.054683	.054683 1.000000	1.000000	0. 0.	ő	ŏ	UN
	11	15 RSI	.138020 .138020	.138020	.138020	.138020 1.000000	1.000000	٠.	·	•	0
	11	FFSUM = .9840	ROW CP TIME =	.038							
								•	•	•	UN
	12	13 RSI	.214256 .214256	.214256	.214256	.214256 1.000000	1.000000	٥.	0	0	UN
	12	14 RSI	.214256 .214256	.214256	.214256	.214256 1.000000	1.000000	٥.	0	0	UN
	12	5 RSI	.034976 .034976	.034976	.034976	.034976 1.000000	1.000000	0.	0	0	UN
		15 RSI	.097637 .097637	.097637	.097637	.097637 1.000000	1.000000	٥.	0	Ų	UN
	12	FFSUM = .9466	ROW CP TIME =	.039							
	12	FF3UM = .3400	HON OF TAME								
	13	14 RSI	.214256 .214256	.214256	.214256	.214256 1.000000	1.000000	0.	0	0	UN

DATE 05/09/77 TIME 19.58.21. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)

(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

					-			•					
NOD	ΕĮ	NODE J C	COMPUTATION	FIR(I,J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ	
	13 13 13		RSI RSI .8552	.012000 .051908 ROW CP 1		.012000 .051908 .052	.012000 .051908	1.000000	1.000000	0. 0.	0	0	UN UN
	14 14 14	5 15 FFSUM =	RSI RSI .9215	.057045 .109433 ROW CP 1	.109433	.057045 .109433 .017		1.000000	1.000000	o. o.	0	0	UN UN
	5	FFSUM ≠	.5557	ROW CP 1	TIME =	.005							
	15	FFSUM =	.5557	ROW CP	TIME =	.002							
н-95	21	FFSUM =	ο.	ROW CP	TIME =	.005							
	22	FFSUM =	0.	ROW CP 1	TIME =	.001							
	23	FFSUM =	0.	ROW CP 1	TIME =	.002							
	24	FFSUM =	0.	ROW CP 1	TIME =	.004							
	25	FFSUM =	ο.	ROW CP	TIME =	.005							

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE I NODE J COMPUTATION FIR(I,J) FIR(J,I) FSOL(I,J) FSOL(J,I) FF SHAD.IR SHAD.SOL CP TIME W/SHAD WO/SHAD FACTOR FACTOR W/SHAD W/SHAD W/SHAD

.034 ROW CP TIME = 26 FFSUM = 0.

DATE 05/09/77 TIME 19.58.22.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDCG500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

23- 0.	_	24-	0.	25-	- 0.		26-	0								
13-	.8552	14-	.9215	5-		. 5557	15-		.5557	2	1- (0.	2	2-	٥.	
1	.9840	2-	.9466	3-		.8552	4-		.9215	1	1 –	.9840	1	2-	.94	66
NODE I+ FI	F SUM NO	DDE I-	FF SUM	NODE I-	- FF	F SUM	NODE I-	F	F SUM	NODE	I –	FF SUM	NODE	I -	FF S	UM

TOTAL TIME FOR FORM FACTOR SEGMENT .766

TOTAL TIME SINCE START OF RUN 35.208

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 052500 FOR THE GB SEGMENT

DATE 05/09/77 TIME 19.58.24.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 GRAY BODIES COMPUTATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

GREY BODIES

VARIABLE CURRENT DEFAULT NAME VALUE

BOTH

NONE

DEFINITION

OPTIONS

GBWBND

WAVEBAND DEFINITION PARAMETER

(IR,SOL,BOTH)

RESTARTING -GBIR - DATA FOR CONFIGURATION -CASE1 - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX153

H-98 RESTARTING -GBSO - DATA FOR CONFIGURATION -CASE1 - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX153 ON 05/04/77

GRAY BODIES STORED FOR CONFIG. CASE1 IR

GRAY BODIES STORED FOR CONFIG. CASE1 SOL

.77 TOTAL TIME TO COMPUTE GRAY BODIES

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 050000 FOR THE RC SEGMENT

DATE 05/09/77 TIME 19.58.41. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/GRBGEN/OPLOT

RADIATION CONDUCTORS

DEFINITION	OPTIONS
PUNCH/NO PUNCH PARAMETER FOR RADKS	(YES,NO)
PARAMETER TO ELIMINATE SMALL RADK S	N/A
INITIAL RADIATION CONDUCTOR ID NUMBER	N/A
MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE	(SPACE.NO)
SPACE NODE ID NUMBER	N/A
STEFAN-BOLTZMANN CONSTANT	N/A
AREA MULTIPLYING FACTOR	N/A
PARAMETER TO OUTPUT TO BCD TAPE	(TAPE,NO)
SIGNIFICANT RADIATION FRACTION	(0. TO 1.)
DECIMAL FRACTION OF LAST RADK SAVED	N/A
EFFECTIVE RADIATION NODE (ERN) NUMBER	N/A
5	PARAMETER TO ELIMINATE SMALL RADK S INITIAL RADIATION CONDUCTOR ID NUMBER MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE SPACE NODE ID NUMBER 9 STEFAN-BOLTZMANN CONSTANT AREA MULTIPLYING FACTOR PARAMETER TO OUTPUT TO BCD TAPE SIGNIFICANT RADIATION FRACTION DECIMAL FRACTION OF LAST RADK SAVED

DATE 05/09/77 TIME 19.58.54. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP==1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 2. - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

SPECIAL RADIATION NODES

NONE

MESS SPECIAL NODES

PRIMARY SECONDARY

NONE

DATE 05/09/77 TIME 19.58.54.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

RADIATION CONDUCTOR (RADKS) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

	PUNCHED !	RADKS	-	1,	1.	2.	1.7130000E-09*	2.1681286E-01
	PUNCHED !	RADKS		2,	1.	3.	1.7130000E-09*	4.9461758E-01
	PUNCHED I	RADKS	-	3,	1,	4.	1.7130000E-09*	4.4042526E-01
	PUNCHED I	RADKS	_	4,	1,	12.	1.7130000E-09*	2.1681286E-01
	PUNCHED I	RADKS	_	5.	1.	5.	1.7130000E-09*	3.2924391E-01
	PUNCHED I	RADKS	-	6,	2,	3.	1.7130000E-09*	2.1534148E-01
	PUNCHED I	RADKS	_	7.	2.	4.	1.7130000E-09*	2.1575006E-01
	PUNCHED I	RADKS	-	8.	2,	12	1.7130000E-09*	6.1032956E-02
	PUNCHED I	RADKS	-	9,	2,	5,	1.7130000E-09*	1.1755086E-01
	PUNCHED I	RADKS	-	10.	3.	4.	1.7130000E-09*	4.3682884E-01
	PUNCHED I	RADKS	-	11,	з,	12,	1.713000/1-09*	2.1534148E-01
	PUNCHED I	RADKS	_	12.	3,	5.	1.7130000E-09*	1.2628027E-01
	PUNCHED I	RADKS	-	13.	4,	12.	1.7130000E-09*	2.1575006E-01
	PUNCHED I	RADKS	-	14.	4.	5.	1.7130000E-09*	2.8732294E-01
	PUNCHED I	RADKS	-	15.	12,	5.	1.7130000E-09*	1.1755086E-01
	PUNCHED 1	RADKS	-	16.	1.	999.	1.7130000E-09*	1.9138505E+00
1	PUNCHED 1	RADKS	-	17.	2,	999.	1.7130000E-09*	9.9639791E-01
_	PUNCHED I	RADKS	-	18,	3,	999.	1.7130000E-094	2.1290552E+00
2	PUNCHED I	RADKS	_	19.	4,	999.	1.7130000E-09*	2.0205595E+00
-	PUNCHED I	RADKS	-	20.	12.	999.	1.7130000E-09*	9.9639791E-01
	PUNCHED I	RADKS	-	21,	5,	999	1.7130000E-09*	2.6613585E+00

TOTAL TIME TO COMPUTE AND CONDENSE RADKS = .62

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

	INPUT Value	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		
	SHAD .250	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS
	.100	SHADDWING ACCURACY FACTOR FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA	SOL, PLAN, ALL	ALL 0 0.0	ICALFL NSPFF TRUEAN
	o. o.	TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0	TIMEST
		++++ BASIC ORBI	T DATA ++++		
	o. o.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES		0.0 0.0 0.0	ALAN APER DINC
н-102	0. 6.08000E+05 6.08000E+05	ORBIT ALTITUDE AT PERIAPSIS CRBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY		0.0 0.0 0.0	HP HA ECC
2	0. 0. 0.	SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES		0.0 0.0 0.0	SUNRA SUNDEC STRRA
	ŏ.	REFERENCE STAR DEC ANGLE, DEGREES		0.0	STRDEC
		++++ PLANET-ORIENTED. C	RIENTATION DATA ++++		
	300.000 270.000 0.	ROTATION ABOUT VCS X-AXIS TO CCS POTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS		0.0 0.0 0.0 1.2 3	ROTX ROTY ROTZ
	1 2 3 3.000E+02 3.000E+01	ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0	SUNCL SUNCO PLCL
	0. 0.	PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0	PLCO
		++++ SPIN DAT	`A ++++		
	o. o.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CCV CONE ANGLE, DEGREES	y=POSITIVE)	0.0	CLOCK CONE RATE
	0. 0.	ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS		0.0 0.0	TIMSP

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

DATE 05/09/77 TIME 19.58.58.

+++++++ NSTEP NO = 10000

++++ COMPUTED OR INPUT ORBIT DATA ++++

		•••	- COMPOTED	OK 1111	OI ORDII DAIA 1	rttr	
	VALUE	VARIABLE DESCRIPTION		***	VALUE	VARIABLE DESCRIPTION	1
	60.000 0.	SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGREE	ES		o. o.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGRE	
			++++ PLANET	EAR	TH DATA +++	++	
	VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
Ħ.	.300 2.09000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	w ds wss
·103	4.17312E+08	PLANET GRAV CONSTANT	GRAV		4.29000E+02	SOLAR CONSTANT AT PSD	SOL

DIRECT INCIDENT FLUXES CALCULATED USING SHADOW FACTORS

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MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

-DICAL - RESTART DATA FOR CONFIGURATION -CASE1 - NOT FOUND ON UNIT -RSI-. INITIATING CALCULATIONS.

DATE 05/09/77 TIME 19.59.01.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

	SOLAR	DIRECT INCIDENT	FLUX FOR	STEP NO *00 THE	RUE ANOMALY = ++++	0.	TIME =	.00000
NODE NUMBER	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	0.	SFTAPE	.001	9	0	
2	1.11457E+02	1.85762E+02	.6000	SFTAPE	.083	81	ñ	
3	3.93250E+01	1.07250E+02	.3667	SFTAPE "	.131	64	Ô	
4	1.36226E+02	3.715256+02	.3667	SFTAPE	.189	81	0	
11	0.	0.	0.	SFTAPE	.200	9	Ŏ	
12	0.	0.	0.	SFTAPE	.213	9	Ô	
13	3.21750E+01	1.07250E+02	.3000	SFTAPE	.260	64	0	
14	2.47683E+01	3.71525E+02	.0667	SFTAPE	.317	81	. 0	
5	0.	Ο.	0.	SFTAPE	.328	9	0	
15	0.	0.	0.	SFTAPE	.338	a a	0	
21	0.	0.	0.	SFTAPE	.359	Ř	0	
22	1.07250E+02	1.07250E+02	1.0000	SFTAPE	.401	66	0	
2 3	1.85762E+02	1.85762E+02	1.0000	SFTAPE	.459	81	0	
24	0.	0.	0.	SFTAPE	.467	Ω	0	
25	0.	0.	0.	SFTAPE	.477	0	0	
26	1.86871E+02	1.86871E+02	1.0000	CALC	1.048	78	10	

TOTAL ELAPSED TIME IN PROBLEM =

38.307 SECONDS

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DATE 05/09/77 TIME 19.59.05.

MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 10000 TRUE ANOMALY = 0. TIME = 0 ++++ IN THE SUN ++++

NODE NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHADOW Albedo	PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME - (SECONDS)	-ELEMEN PLAN	TS SURF	SHAD SURF
		_	•	0.	0.	0.	0.	0.	66	9	9
1		0.	0.		ŏ.	Ö.	0.	.468	63	9	7
2		0.	0.	0.	0.	Ö.	o.	.888	61	9	9
3		0.	0.	0.		ö.	o.	1.103	52	9	9
4		0.	0.	·0.	0.	ö.	o.	1.545	66	9	9
11		0.	0.	0.	0.	o.	ö.	1.981	63	9	9
12		0.	0.	0.	0.	0.	ö.	2.429	61	9	9
13		0.	ο.	0.	0.	ö.	ŏ.	2.655	52	9	9
14		0.	ο.	0.	0.	.465	.465	4.324	133	16	7
5		3.425E+01	2.294E+01	7.361E+01	4.930E+01	.474	.472	6.070	133	16	9
15		3.497E+01	2.328E+01	7.373E+01	4.930E+01		1.000	6.848	112	18	10
21		1.101E+02	7.423E+01	1.101E+02	7.423E+01	1.000		7.528	61	10	10
22		4.024E+01	2.683E+01	4.024E+01	2.683E+01	1.000	1.000		63	١٥	10
23		4.005E+01	2.645E+01	4.005E+01	2.645E+01	1.000	1.000	8.042	66	10	10
24		3.915E+01	2.678E+01	3.915E+01	2.678E+01	1.000	1.000	8.640		10	8
25		3.823E+01	2.643E+01	3.823E+01	2.643E+01	1.000	1,000	9.170	66	9	10
H 26		6.592E+00	4.570E+00	6.592E+00	4.570E+00	1.000	1.000	9.679	52	2	10

TOTAL ELAPSED TIME IN PROBLEM =

48.459 SECONDS

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

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DATE 05/09/77 TIME 20.06.00.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10000 ABSORBED Q COMPUTATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ABSORBED HEAT

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10000	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10000	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10000	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10000

TOTAL TIME TO COMPUTE ABSORBED Q .37

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

35

MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME					
	++++ BASIC CONTROL PARAMETERS ++++									
	55	SHADOWING OVERRIDE FLAG	SHAD, NOSH	SHAD	DINOSH DIACC					
	SHAD	PLANETARY ACCURACY FACTOR		0.25	DIACCS					
	.250 .100	SHADDWING ACCURACY FACTOR		0.10 All	ICALFL					
	.100	FILLX COMPUTATION FLAG	SOL, PLAN, ALL	ALC O	NSPFF					
	10000	STEP NO. FOR PLANET-DRIENTED DATA		c.0	TRUEAN					
	90.000	TRUE ANDMALY ANGLE, DEGREES		0.0	TIMEST					
	0.	INITIAL TIME (AT PERIAPSIS)		0.0						
	++++ BASIC ORBIT DATA ++++									
				0.0	ALAN					
	0.	LONGITITUDE OF ASCENDING NODE, DEGREES		0.0	APER					
	0.	ARGUMENT OF PERIFOCUS, DEGREES		0.0	DINC					
	0.	ORBIT INCLINATION, DEGREES		0.0	HР					
::::	6.08000E+05	CRRIT ALTITUDE AT PERIAPSIS		0.0	HA					
н-108	6.08000E+05	ORBIT ALTITUDE AT APOAPSIS		0.0	ECC					
70	0.	ORBIT ECCENTRICITY		0.0	SUNRA					
œ	0.	SUN RA ANGLE. DEGREES		0.0	SUNDEC					
	0.	SIN DEC ANGLE DEGREES.		0.0	STRRA					
	o. o.	REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0	STRDEC					
	++++ PLANET-ORIENTED, ORIENTATION DATA ++++									
		TTTT FEARET ONLEW DOT			ROTX					
	00	ROTATION ABOUT VCS X-AXIS TO CCS		0.0	ROTY					
	300.000	ROTATION ABOUT VCS Y-AXIS TO CCS		0.0 0.0	ROTZ					
	270.000	ROTATION ABOUT VCS Z-AXIS TO CCS		1 2 3	11012					
	0. 1 2 3	POTATION ORDER IROTX, IROTY, IRUIZ		0.0	SUNCL					
	1 2 3 3.600E+02	SIN INDE ANGLE - CLOCK, DEGREES		0.0	SUNCO					
		CHN LOOK ANGLE - CONE. DEGREES	0.0	PLCL						
	9.000E+01	DIANET LOOK ANGLE - CLOCK, DGREES	·	0.0	PLCO					
	0. 0.	PLANET LOOK ANGLE - CONE, DEGREES		0.0						
	++++ SPIN DATA ++++									
				0.0	CLOCK					
	0	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS C	CW=PCSITIVE)	0.0	CONE					
	0.	CONE ANGLE. DEGREES		0.0	RATE					
	0.	ROTATION RATE- CCW POSITIVE		0.0	TIMSP					
	0. 0.	TIME SPIN BEGINS		0.0						
	٠.	Fame Of all sections								

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10001

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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DIRECT IRRADIATION CALCULATION LINK.

DATE 05/09/77 TIME 20.15.39.

++++++ NSTEP NO = 10001

++++ COMPUTED OR INPUT ORBIT DATA ++++

		TIT COMPOSED	OK 1.1.	I ORDII DAIA		
VALUE	VARIABLE DESCRIPTION	N	***	VALUE	VARIABLE DESCRIPTION	ı
60.000 0.	SUN BETA ANGLE, DEGREE STAR BETAS ANGLE, DEGR			o. o.	SUN CÍGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGRE	
		++++ PLANET	EART	H DATA ++-	++	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300	PLANET ALBEDO	PALB		7.50732E+01	PLANET DS EMISS POWER	WDS
2.09000E+07	PLANET RADIUS	PRAD		7.50732E+01	PLANET SS EMISS POWER	WSS
1.46792E+00	ORBIT PERIOD	PERIOD		•		
4.17312E+08	PLANET GRAV CONSTANT	GRAV		4.29000E+02	SOLAR CONSTANT AT PSD	SOL

DIRECT INCIDENT FLUXES CALCULATED USING SHADOW FACTORS

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MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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DATE 05/09/77 TIME 20.15.40. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

(.... , obodos, 300, 2 3.4

PAGE

.36701

MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

90.00000

TIME =

	•		++++	IN THE SUN +	++++			
NODE NUMBER	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	0.	SFTAPE	0.	9	0	
2	0.	5.25186E-07	0.	SFTAPE	.039	9	Ō	
3	0.	4.29000E+02	0.	SFTAPE	.081	81	Ô	
4	0.	0.	0.	SFTAPE	.092	9	Ó	
11	0.	0.	0.	SFTAPE	.102	9	Ö	
12	0.	0.	0.	SFTAPE	.111	9	Ö	
13	0.	4.29000E+02	0.	SFTAPE	.155	81	Ö	
14	0.	0.	0.	SFTAPE	.166	9	Ö	
5	3.03349E+02	3.03349E+02	1.0000	SFTAPE	.222	81	Ö	
15	3.03349E+02	3.03349E+02	1.0000	SFTAPE	.284	81	Ö	
21	6.73312E-07	6.73312E-07	1.0000	SFTAPE	.311	8	Ö	
22	4.29000E+02	4.29000E+02	1.0000	SFTAPE	.367	78	0	
23	5.21643E-07	5.21643E-07	1.0000	SFTAPE	.385	9	Ŏ	
24	0.	0.	0.	SFTAPE	.393	8	Ö	
25	0.	0.	0.	SFTAPE	.403	9	Ŏ	
26	0.	0.	0.	SFTAPE	.412	8	Ô	

SOLAR DIRECT INCIDENT FLUX FOR STEP NO *01 TRUE ANOMALY =

TOTAL ELAPSED TIME IN PROBLEM =

49.905 SECONDS

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DATE 05/09/77 TIME 20.15.42. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

	ALBEDO AN	D PLANETARY	Y DIRECT INCIDER	NT FLUXES FOR ++++ IN THE	STEP NO 1000	_	ANOMALY =	90.00000	TIME :	- 0.	
NODE: NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHADO ALBEDO	WED FLUX PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME - (SECONDS)	ELEMEN PLAN	NTS SURF	SHAD SURF
•		0.	0.	0.	0.	Ο.	0.	ο.	66	9	9
1		0.	0.	0.	0.	0.	0.	.480	63	9	7
<u> </u>		0.	ŏ.	0.	o.	0.	0.	.929	61	9	9
3			0.	ŏ.	ō.	o.	0.	1.163	52	9	9
4		0.		0.	0.	o.	0.	1.614	66	9	9
11		0.	0.	0.	o.	Ö.	Ö.	2.062	63	9	9
12		0.	0.		0.	Ö.	ō.	2.509	61	9	9
13		0.	0.	0.	0.	ö.	Ö.	2.737	52	9	9
14		0.	0.	0.4705.00	4.930E+01	.641	.465	4.391	133	16	7
5		1.584E+00	2.294E+01	2.470E+00	-	.642	.472	6.112	133	16	9
15		1.586E+00		2.470E+00	4.930E+01	1.000	1.000	6.877	112	18	10
21		1.430E+00		1.430E+00	7.423E+01				61	10	10
22		2.061E+00	2.683E+01	2.061E+00	2.683E+01	1.000	1.000	7.541	63		10
23		6.423E-01	2.645E+01	6.423E-01	2.645E+01	1.000	1.000	8.043		40	10
24		0.	2.678E+01	0.	2.678E+01	0.	1.000	8.623	66	10	10
25		6.342E-01	2.643E+01	6.342E-01	2.643E+01	1.000	1.000	9.142	66	9	10
26		0.	4.570E+00	0.	4.570E+00	ο.	1.000	9.546	52	2	10

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

TOTAL ELAPSED TIME IN PROBLEM =

60.046 SECONDS

DATE 05/09/77 TIME 20.16.00. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10001 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ABSORBED HEAT

NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10001	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10001	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10001	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10001

TOTAL TIME TO COMPUTE ABSORBED Q .37

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

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SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK.

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		
	SHAD .250	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25	DINOSH DIACC DIACCS
	.100	SHADOWING ACCURACY FACTOR FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA	SOL, PLAN, ALL	0.10 ALL 0	ICALFL NSPFF
	180.000	TRUE ANDMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0 0.0	TRUEAN TIMEST
		++++ BASIC ORBI	IT DATA ++++		
	0. 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES		0.0 0.0 0.0	ALAN APER OINC HP
H-114	6.08000E+05 6.08000E+05 0.	ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APDAPSIS ORBIT ECCENTRICITY		0.0	HA ECC SUNRA
4	0. 0. 0.	SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0 0.0	SUNDEC STRRA STRDEC
		++++ PLANET-ORIENTED, C	DRIENTATION DATA ++++		
	300.000 270.000 0. 1 2 3 3.000E+02 1.500E+02 0.	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0 1 2 3 0.0 0.0 0.0	ROTX ROTY ROTZ SUNCL SUNCO PLCL PLCO
	•	++++ SPIN DA	ΓA ++++		
	0. 0. 0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CC) CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS	N=POSITIVE)	0.0 0.0 0.0 0.0	CLOCK CONE RATE TIMSP

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK.

DATE 05/09/77 TIME 20.16.15.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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++++++ NSTEP NO = 10002

++++ COMPUTED OR INPUT ORBIT DATA ++++

VALUE	VARIABLE DESCRIPTIO	N	***	VALUE	VARIABLE DESCRIPTION	
60.000	SUN BETA ÁNGLE, DEGREE STAR BETAS ANGLE, DEGR			o. o.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREE	S
	0500010710			TH DATA ++-		
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300	PLANET ALBEDO	PALB		7.50732E+01	PLANET DS EMISS POWER	WDS
2.09000E+07 1.46792E+00	PLANET RADIUS ORBIT PERIOD	PRAD PERIOD		7.50732E+01	PLANET SS EMISS POWER	WSS
4.17312E+08	PLANET GRAV CONSTANT	GRAV		4.29000E+02	SOLAR CONSTANT AT PSD	SOL

DIRECT INCIDENT FLUXES CALCULATED USING SHADOW FACTORS

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DATE 05/09/77 TIME 20.16.15.

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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DATE 05/09/77 TIME 20.16.17. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

	SOLAR	DIRECT INCIDENT		-	UE ANOMALY = ++++	180.00000	TIME =	.73402
NODE NUMBER	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	0.	SFTAPE	ο.	0	0	
2	0.	0.	0.	SFTAPE	.035	0	0	
3	0.	0.	0.	SFTAPE	.039	0	0	
4	0.	0.	0.	SFTAPE	.043	0	0	
11	0.	0.	0.	SFTAPE	.047	0	Ō	
12	0.	0.	0.	SFTAPE	.050	0	Ō	
13	0.	0.	0.	SFTAPE	.055	Ö	Õ	
14	0.	0.	0.	SFTAPE	.058	Ō	Ö	
5	0.	0.	0.	SFTAPE	.062	0	Ō	
15	0.	0.	0.	SFTAPE	.065	0	Ō	
21	0.	0.	0.	SFTAPE	.076	Ō	ō	
22	0.	0.	ο.	SFTAPE	.080	0	Ö	
23	0.	0.	0.	SFTAPE	.084	0	0	
24	0.	0.	0.	SFTAPE	.089	Ō	Ō	
25	0.	0.	0.	SFTAPE	.092	Ö	Ō	
26	0.	0.	0.	SFTAPE	.094	0	Ō	

TOTAL ELAPSED TIME IN PROBLEM =

61.206 SECONDS

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SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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DATE 05/09/77 TIME 20.16.18. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK.

> ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 10002 TRUE ANOMALY = 180.00000 TIME = ٥. ++++ IN THE SHADE ++++

NODE NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHADO ALBEDO	WED FLUX PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME - (SECONDS)	-ELEMEN PLAN	ITS SURF	SHAD SURF
1		0.	0.	0.	0.	ο.	0.	0.	0	0	0
ģ		0.	0.	0.	0.	С.	0.	.028	0	0	0
3		0.	0.	0.	0.	0.	0.	.032	0	0	0
4		0.	0.	O.	0.	0.	0.	.036	G	0	0
11		0.	0.	0.	0.	٥.	0.	.040	0	0	0
12		0.	0.	0.	0.	Ο.	0.	.044	0	0	0
13		0.	Ö.	0.	0.	0.	0.	.049	0	0	0
14		0.	o.	0.	0.	0.	0.	.052	0	0	0
5		o.	2.294E+01	0.	0.	ο.	0.	.056	0	0	0
15		0.	2.328E+01	0.	0.	0.	0.	.059	0	0	0
21		0.	7.423E+01	0.	0.	٥.	0.	.075	0	0	0
22		0.	2.683E+01	0.	0.	0.	0.	.080	0	0	0
23		0.	2.645E+01	0.	Ö.	0.	0.	.085	0	0	0
24		0.	2.678E+01	0.	0.	0.	0.	.088	0	0	0
25		0.	2.643E+01	0.	0.	Ο.	0.	.093	0	0	0
ェ 26		ō.	4.570E+00	0.	0.	0.	Ο.	.104	0	0	0

TOTAL ELAPSED TIME IN PROBLEM =

61.333 SECONDS

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

DATE 05/09/77 TIME 20.16.21.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10002

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ABSORBED Q COMPUTATION LINK.

ABSORBED HEAT

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10002	CURRENT	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10002	STEP NO. CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10002	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10002

TOTAL TIME TO COMPUTE ABSORBED Q .25

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

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SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTRO	L PARAMETERS ++++		-
	SHAD .250	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS
	10000	SHADOWING ACCURACY FACTOR FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA	SOL, PLAN, ALL	ALL O	ICALFL NSPFF TRUEAN
	105.720	TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0 0.0	TIMEST
		++++ BASIC OR	BIT DATA ++++		
	0. 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES		0.0 0.0 0.0 0.0	ALAN APER OINC HP
н-120	6.08000E+05 6.08000E+05 0.	CRBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES		0.0 0.0 0.0	HA ECC SUNRA SUNDEC
	0. 0. 0.	SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0	STRRA STRDEC
		++++ PLANET-ORIENTED.	ORIENTATION DATA ++++		
	300.000 270.000 0.	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS		0.0 0.0 0.0 1 2 3	ROTX ROTY ROTZ
	1 2 3 3.590E+02 1.036E+02	ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0 0.0	SUNCL SUNCO PLCL PLCO
	0.				
		++++ SPIN [)ATA ++++		01.00%
	0. 0. 0.	CLOCK ANGLE, DEGREES(ABOUT CCS Z-AXIS C CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE	CW=POSITIVE)	0.0 0.0 0.0 0.0	CLOCK CONE RATE TIMSP
	0.	TIME SPIN BEGINS		- • -	

DATE 05/09/77 TIME 20.16.27. THERMAL

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GECAL/RCCAL/ORBGEN/OPLOT

PAGE

++++++++ NSTEP NO = 10003

++++ COMPUTED OR INPUT ORBIT DATA ++++

VALUE	VARIABLE DESCRIPTION		***	VALUE	VARIABLE DESCRIPTION	
60. 000 0.	SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGREES	S		0.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREES	
	. •	++++ PLANET	EARTH	DATA +++	+	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300 2.09000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD	•	7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	WDS WSS
4.17312E+08	PLANET GRAV CONSTANT	GRAV	•	1.29000E+02	SOLAR CONSTANT AT PSD	SOL

DIRECT INCIDENT FLUXES CALCULATED USING SHADOW FACTORS

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PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

DATE 05/09/77 TIME 20.16.29. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

	SOLAR	DIRECT INCIDENT			JE ANOMALY =	105.71977	TIME =	.43111
NODE NUMBER	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	0.	SFTAPE	0.	9	0	
2	0.	6.94783E+00	Ó.	SFTAPE	.039	9	0	
3	0.	4.16966E+02	0.	SFTAPE	.083	. 81	0	
4	0.	0.	0.	SFTAPE	.094	9	0	
11	o.	0.	0.	SFTAPE	.102	9	0	
12	o.	0.	0.	SFTAPE	.111	9	0	
13	0.	4.16966E+02	0.	SFTAPE	.150	81	0	
14	0.	0.	ō.	SFTAPE	.159	9	0	
5	2.99791E+02	3.66016E+02	.8191	SFTAPE	.212	81	0	
15	2.99791E+02	3.66016E+02	.8191	SFTAPE	.265	81	0	
21	1.00658E+02	1.00658E+02	1.0000	SFTAPE	.314	55	0	
22	4.16966E+02	4.16966E+02	1.0000	SFTAPE	.371	7 8	0	
23	6.94783E+00	6.94783E+00	1.0000	SFTAPE	.387	9	0	
24	0.547052100	0.	0.	SFTAPE	.402	8	0	
25	0.	o.	ö.	SFTAPE	.410	9	0	
25	. 0	o.	0.	SFTAPE	.418	8	Ö	

TOTAL ELAPSED TIME IN PROBLEM =

62.600 SECONDS

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DATE 05/09/77 TIME 20.16.31. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 10003 TRUE ANOMALY = 105.71977 TIME = ++++ IN THE SUN ++++

NODE: NUMBER	COMPUT	DIRECT ALBEDO	INCID. FLUX PLANETARY	UNSHADO ALBEDO	DWED FLUX PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME - (SECONDS)	-ELEMEN PLAN	TS SURF	SHAD SURF
1	•	ο.	0.	0.	0.	0.	0	.001	0	8	0
2		0.	0.	0.	0.	0.	Ο.	.030	0	8	0
. 3		0.	0.	0.	0.	Ο.	0.	.034	0	8	0
4		0.	0.	0.	0.	0.	0.	.038	O	8	0
11		o.	0.	0.	٥.	oʻ.	Ó.	.042	0	8	0
12		0.	0.	0.	0.	Ο.	0.	.046	0	8	0
13		0.	0.	0.	0.	0.	0.	.049	0	8	0
14		o.	0.	0.	0.	0.	0.	.053	e	3	0
5		0.	2.294E+01	0.	٥.	0.	0.	.058	0	8	0
15		0.	2.328E+01	0.	0.	0.	0.	.062	0	8	0
21		0.	7.423E+01	0.	0.	0.	0.	.076	0	8	0
22		0.	2.683E+01	0.	0.	0.	0.	.081	0	8	0
23		Ö.	2.645E+01	0.	0.	0.	0.	.085	0	8	0
24		Ō.	2.678E+01	0.	0.	0.	0.	.089	0	8	0
25		0.	2.643E+01	0.	0.	0.	0.	.093	0	8	0
26		0.	4.570E+00	0.	0.	0.	0.	.098	0	8	0

TOTAL ELAPSED TIME IN PROBLEM =

62.720 SECONDS

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

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DATE 05/09/77 TIME 20.16.33.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10003 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLGT

ABSORBED HEAT

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10003	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10003	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10003	CURRENT STEP NO	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10003

TOTAL TIME TO COMPUTE ABSORBED Q .26

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

	INPUT Value	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME					
		++++ BASIC CONTROL	PARAMETERS ++++							
	SHAD .250 .100	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR SHADOWING ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS					
	10000	FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA	SOL, PLAN, ALL	ALL 0 0.0	ICALFL NSPFF TRUEAN					
	105.920 0.	TRUE ANDMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0	TIMEST					
	++++ BASIC ORBIT DATA ++++									
H-126	0. 0. 0. 6.08000E+05	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES ORBIT ALTITUDE AT PERIAPSIS		0.0 0.0 0.0 0.0	ALAN APER OINC HP					
	6.08000E+05 0. 0.	ORBIT ALTITUDE AT APDAPSIS ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES		0.0 0.0 0.0	HA ECC SUNRA					
	o. o. o.	SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0	SUNDEC STRRA STRDEC					
		++++ PLANET-ORIENTED. C	RIENTATION DATA ++++							
	300.000 270.000 0. 1 2 3	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS ROTATION ORDER IROTX, IROTY, IROTZ		0.0 0.0 0.0 1 2 3	ROTX ROTY ROTZ					
	3.590E+02 1.037E+02 0. 0.	SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0 0.0	SUNCL SUNCO PLCL PLCO					
		++++ SPIN DAT	`A ++++							
	o. o.	CLOCK ANGLE, DEGREES(ABOUT CCS Z-AXIS CCW CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE	=POSITIVE)	0.0 0.0 0.0	CLOCK CONE RATE					
	0.	TIME SPIN BEGINS		0.0	TIMSP					

* 4 . . .

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DATE 05/09/77 TIME 20.16.40. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GECAL/RCCAL/ORBGEN/OPLOT

+++++++ NSTEP NO = 10004

++++ COMPUTED OR INPUT ORBIT DATA ++++

	VALUE	VARIABLE DESCRIPTION	N	***	VALUE	VARIABLE DESCRIPTION	N
60.000 0.		SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGREES		o. o.		SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREE	S EES
			++++ PLANET	EART	H DATA +++	++	
	VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
H-	.300 2.09000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS GRBIT PERIOD	PALB PRAD PERIOD		7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	W D S W S S
.127	4.17312E+08	PLANET GRAV CONSTANT	GRAV	4	4.29000E+02	SOLAR CONSTANT AT PSD	SOL

DIRECT INCIDENT FLUXES CALCULATED USING SHADOW FACTORS

DATE 05/09/77 TIME 20.16.40.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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DATE 05/09/77 TIME 20.16.42. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

		SOLAR	DIRECT INCIDENT	FLUX FOR		E ANOMALY = +++	105.91977	TIME =	.43193
	NODE NUMBER	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
	1	0.	0.	0.	SFTAPE	0.	0	0	
	2	0.	0.	0.	SFTAPE	.027	0	Ō	
	3	0.	0.	0.	SFTAPE	.031	Ó	Ŏ	
	4	0.	0.	0.	SFTAPE	.034	0	Ô	
	11	0.	0.	0.	SFTAPE	.038	Ö	Õ	
	12	0.	0.	ο.	SFTAPE	.041	Ō	Ô	
	13	0.	0.	0.	SFTAPE	.045	Ô	Ô	
	14	0.	0.	0.	SFTAPE	.049	ŏ	Ô	
	5	0.	0.	0.	SFTAPE	.055	Õ	0	
	15	0.	0.	0.	SFTAPE	.059	Ô	0	
	21	0.	0.	O.	SFTAPE	.071	Õ	0	
	22	0.	0.	0.	SFTAPE	.074	Ŏ	0	
	23	0.	0.	0.	SFTAPE	.079	0	0	
	24	0.	o.	o.	SFTAPE	.082	0	0	
	25	0.	0.	o.	SFTAPE	.085	0	0	
	26	0.	0.	0.	SFTAPE		0	0	
•	20	••	٧.	٠.	SFIAPE	.089	U	U	

TOTAL ELAPSED TIME IN PROBLEM =

63.635 SECONDS

DATE 05/09/77 TIME 20.16.43. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 10004 TRUE ANOMALY = 105.91977 TIME = 0

NODE: NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHADO Albedo	WED FLUX PLANETARY	SHADCW ALBEDO	FACTORS PLAN	CP TIME - (SECUNDS)	-ELEMEN PLAN	TS SURF	SHAD SURF
		_	•	0.	0	Ο.	0.	0.	0	0	0
1		0.	0.	_	0.	0.	Ó.	.026	0	0	0
2		0.	0.	0.	0.	0.	0.	.029	0	0	0
3		0.	0.	0.	0.	ő.	Ö.	.035	0	0	0
4		0.	0.	0.	0.	ö.	o.	.038	0	0	0
11		0.	0.	0.	0.	ö.	0	.047	0	0	0
12		Ο.	0.	0.	0.	ö.	ŏ.	.051	O	0	0
13		0.	0.	0.	0.	0.	o.	.054	0	0	0
14		О.	0.	0.	0.	2.1	0.	.058	Ċ	0	0
5		0.	2.294E+01	0.	0.	0. 0.	ŏ.	.062	Ċ	0	0
15		0.	2.328E+01	0.	0.	7.	ŏ.	.073	Ō	Ö	0
21		0.	7.423E+01	0.	0.	0.		.076	Ö	Ō	0
22		G.	2.633E+01	0.	0.	0.	0.	.081	ŏ	Õ	0
23		0.	2.645E+01	ο.	0.	0.	0.	.085	ŏ	ō	0
24		0.	2.678E+01	0.	0.	0.	0.	.088	Õ	ŏ	C
. 25		0.	2.643E+01	0.	0.	٥.	0.	.092	ő	Ô	ŏ
平 26		0.	4.570E+00	0.	0.	0.	0.	.092	U	•	-

TOTAL ELAPSED TIME IN PROBLEM =

63.749 SECONDS

ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT

I-13

DATE 05/09/77 TIME 20.16.45. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10004

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ABSORBED Q COMPUTATION LINK.

IAQSDA

IAQSDP

ABSORBED HEAT VARIABLE CURRENT DEFAULT DEFINITION NAME VALUE IAQSDS 10004 CURRENT STEP NUMBER REFERENCE FOR SOLAR DI STEP NO.

OPTIONS

N/A N/A

10004 CURRENT STEP NUMBER REFERENCE FOR ALBEDO DI STEP NO. 10004 CURRENT STEP NUMBER REFERENCE FOR PLANETARY DI STEP NO.

N/A

ABSORBED Q STORED IN STEP 10004

TOTAL TIME TO COMPUTE ABSORBED Q

ADJUSTING FIELD LENGTH TO 051700 FOR THE QO SEGMENT

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SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

VARIABLE NAME	CURRENT DEFAULT	ABSORBED Q OUT DEFINITION	OPTIONS
IQOTME QOTAPE QOPNCH QOAMPF QOFMPF QOTMPF QOTYPE IQOCOR	1 1 NO 2HNO PUN 2HNO 1.0000 1.0 1.0000 1.0 1.0000 1.0 BOTH NONE 0 0	TIME ARRAY ID NUMBER FLUX TABLES START AT IQOTME + 1 PARAMETER TO OUTPUT TO BCD TAPE PUNCH/NO PUNCH PARAMETER FOR OUTPUT AREA MULTIPLYING FACTOR FLUX MULTIPLYING FACTOR TIME MULTIPLYING FACTOR PARAMETER TO DETERMINE TYPE OF OUTPUT STEP NUMBER REFERENCE FOR CORRESPONDENCE DATA	N/A (4HTAPE,2HNO) (3HPUN.2HNO) N/A N/A N/A (3HTAB,2HAY,4HBOTH) N/A
IQDARY	ALL NONE	STEP NO. ARRAY DIRECTIVE	(3HALL, ARRAY NAME)

DATE 05/09/77 TIME 20.16.57.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ABSORBED HEAT FLUX TABLES PUNCHED

Q = INPUT * FMPF WHERE FMPF = 1.00000E+00 TIME = INPUT * TMPF WHERE TMPF = 1.00000E+00 AREA IS ON SUBROUTINE CALL CARDS MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

15 TIME ARRAY 1.969E-08, 3.670E-01, 4.311E-01, 4.319E-01, 7.340E-01 END\$ 2\$ HEAT FLUX ARRAY 6.594E+00, 5.970E+00, 5.905E+00, 4.214E-01, 4.214E-01 END\$ 35 HEAT FLUX ARRAY 1.046E+02, 4.263E+00, 4.216E+00, 3.008E-01, 3.008E-01 END\$ 4\$ HEAT FLUX ARRAY 3.849E+01, 2.290E+00, 2.265E+00, 1.615E-01, 1.615E-01 END\$ 5\$ HEAT FLUX ARRAY 1.233E+02, 5.210E+00, 5.153E+00, 3.680E-01, 3.680E-01 END\$ 6\$ HEAT FLUX ARRAY 1.551E+00, 5.973E+00, 5.908E+00, 4.240E-01, 4.24JE-01 END\$ 7\$ HEAT FLUX ARRAY 1.460E+00, 4.265E+00, 4.218E+00, 3.028E-01, 3.028E-01 END\$ 85 HEAT FLUX ARRAY 2.967E+01, 2.291E+00, 2.266E+00, 1.628E-01, 1.628E-01 END\$ 9\$ HEAT FLUX ARRAY 2.270E+01, 5.212E+00, 5.155E+00, 3.697E-01, 3.697E-01 END\$ 10\$ HEAT FLUX ARRAY 5.149E+01, 2.954E+02, 2.907E+02, 2.066E+01, 2.066E+01 115 HEAT FLUX ARRAY 5.244E+01, 2.956E+02, 2.909E+02, 2.097E+01, 2.097E+01 END\$ 12\$ HEAT FLUX ARRAY 8.883E+01, 6.710E+01, 8.694E+01, 6.681E+01, 6.681E+01 13\$ HEAT FLUX ARRAY 5.364E+01, 1.104E+02, 1.075E+02, 2.414E+01, 2.414E+01 14\$ HEAT FLUX ARRAY 6.896E+01, 2.393E+01, 2.519E+01, 2.380E+01, 2.380E+01 END\$ 15\$ HEAT FLUX ARRAY 3.194E+01, 2.411E+01, 2.411E+01, 2.411E+01, 2.411E+01 END\$ 16\$ HEAT FLUX ARRAY 3.143E+01, 2.391E+01, 2.379E+01, 2.379E+01, 2.379E+01 END\$

DATE 05/09/77 TIME 20.16.59. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ABSORBED HEAT FLUX TABLES PUNCHED

Q = INPUT * FMPF WHERE FMPF = 1.00000E+00 TIME = INPUT * TMPF WHERE TMPF = 1.00000E+00 AREA IS ON SUBROUTINE CALL CARDS

17\$ HEAT FLUX ARRAY 4.281E+01, 4.113E+00, 4.113E+00, 4.113E+00, 4.113E+00 END\$

DATE 05/09/77 TIME 20.16.59.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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63

MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

DATIME SUBROUTINE CALL CARDS

AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

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DATE 05/09/77 TIME 20.16.59.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

DATIMO SUBROUTINE CALL CARDS

```
AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00
DA11MC( 1.46792174E+00.TIMEM, A
                                 1,A
                                       2, 1.00000000E+00.0
                                                               1)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                        3, 1.00000000E+00,Q
                                                               2)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                        4, 1.0000000E+00,Q
                                                               315
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                       5, 1,00000000E+00,Q
                                                               415
DA11MC( 1.46792174E+00,TIMEM,A
                                 1.A
                                        6, 1,00000000E+00,Q
                                                              1115
DA11MC( 1.46792174E+00.TIMEM, A
                                 1,A
                                       7, 1.000000C0E+00.Q
                                                              12)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1.A
                                       8, 1,00000000E+00,Q
                                                              13-)$
DA11MC( 1.46792174E+00.TIMEM, A
                                 1,A
                                       9, 1.0000000E+00.0
                                                              14)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1 , A
                                      10, 1.00000000E+00,Q
                                                               5)$
DA11MC( 1.46792174E+00, TIMEM, A
                                 1,A
                                      11, 1.00000000E+00.Q
                                                              15)$
DA11MC( 1.46792174E+00.TIMEM.A
                                      12. 2.06040000E+00.0
                                                              21)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A 13, 2,06040000E+00,Q
                                                              22)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A 14, 1.04040000E+00,Q
                                                              23)$
DA11MC( 1.46732174E+00, TIMEM, A
                                 1.A
                                      15, 2.06040JCOE+00,Q
                                                              24)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A 16, 1.04040700E+00,Q
                                                              25)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A 17, 2.06040000E+00,Q
                                                              26)$
```

DATE 05/09/77 TIME 20.16.59.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

ABSORBED Q OUTPUT COMPUTATION LINK.

AVERAGE ORBITAL HEATING FLUX AND AREA CARDS PUNCHED

FLUX = INPUT (UNITS) * FMPF WHERE FMPF = 1.00000E+00 VALUES ARE WHERE AMPF = 1.00000E+00 AREA = INPUT (UNITS) * AMPF VALUES ARE

DATE 05/09/77 TIME 20.16.59. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10006
ABSORBED Q OUTPUT COMPUTATION LINK.

AVERAGE ORBITAL HEATING FLUX AND AREA CARDS PUNCHED

VALUES ARE FLUX = INPUT (UNITS) * FMPF WHERE FMPF = 1.00000E+00 VALUES ARE AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

66

```
1= 3.83649262E+00* 1.00000000E+00*1.0000 $
 2= 2.77016978E+01* 1.00000000E+00*1.0000 $
 3= 1.04618168E+01* 1.00000000E+00*1.0000 $
 4= 3.27392019E+01* 1.00000000E+00*1.0000 $
11= 2.57780215E+00* 1.00000000E+00*1.0000 $
12= 1.92879540E+00* 1.00000000E+00*1.0000 $
13= 8.25687631E+00* 1.00000000E+00*1.0000 $
14= 7.58545277E+00* 1.00000000E+00*1.0000 $
5= 1.20979112E+02* 1.00000000E+00*1.0000 $
15= 1.21412855E+02* 1.0000000E+00*1.0000 $
21= 7.32878030E+01* 2.06040000E+00*1.0000 $
22= 6.05224327E+01* 2.06040000E+00*1.0000 $
23= 3.51910041E+01* 1.04040000E+00*1.0000 $
24= 2.60631280E+01* 2.06040000E+00*1.0000 $
25= 2.57340091E+01* 1.04040000E+00*1.0000 $
26= 1.37857494E+01* 2.06040000E+00*1.0000 $
```

TOTAL TIME TO COMPUTE ABSORBED Q DUT 1.03

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ADJUSTING FIELD LENGTH TO 055600 FOR THE OP SEGMENT

DATE 05/09/77 TIME 20.17.00.

MODEL=SAMPLE CONFIG=CASE1 STEP=10006
ORBIT PLOTTER DATA OUTPUT

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

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PAGE

ODATA, ODATAS INPUT

	PARAMETER	DESCRIPTION .	OPTION *,	DEFAULT
H-140	NV	VIEW NUMBER	1-6	1
	νυ	VIEW	3HALL 3H3-D 4HBETA 5HCIGMA 3HSUN 3HGEN	3HAL L
	SCL	VEHICLE SURFACE SCALING FACTOR INPUT IN INCHES (MAX VALUE = (3.15-SCLR)/2.)	REAL NO.	(3.15-5CLR)/2.
	SCLR	ORBIT RADIUS INPUT IN INCHES FROM CENTER OF PLOT (RECOMMENDED VALUE = 1.6)	REAL NO.	8.*RPLN/7.
	RPLN	PLANET RADIUS INPUT IN INCHES FROM CENTER OF PLOT (RECOMMENDED VALUE = 1.4)	REAL NO.	1.4
	TRUEAN	TRUE ANOMALY (PRESENT VEHICLE POSITION IN DEGREES FROM PERIAPSIS)	REAL NO.	COMPUTED IF TIME > 0.
	TIMEST	TIME OF PERIAPSIS PASSAGE	L NO.	NONE
	TIME	TIME AT PRESENT VEHICLE POSITION	REAL NO.	COMPUTED IF TRUEAN > 0.
	ISELN	ARRAY NAME CONTAINING NUMBER OF SURFACES TO BE SELECTIVELY PLOTTED	ARRAY NAME	PLOTS ALL SURFACES
	ITIT	ARRAY NAME OF PLOT TITLE	ARRAY NAME	USES JOB TITLE
	IROTX, IROTY, IROTZ	ORDER OF ROTATIONS (FOR IVU = 3HGEN)	1,2,3 (ANY ORDER) 1,2.3
	ROTX, ROTY, ROTZ,	VIEW ROTATIONS (FOR IVU = 3HGEN)	0 @ ANG @ 360	0.0 0.0 0.0

^{*}INPUT ZERO FOR DEFAULT ACTION

CALLING SEQUENCE%.

CALL ODATA (NV. VU, SCL, SCLR, RPLN, TRUEAN, TIMEST, TIME, ISELN, ITIT, IROTX, IROTY, IROTZ, ROTX, ROTY, ROTZ)

OR

CALL ODATAS (NV. VU. SCL. SCLR, RPLN, TRUEAN, TIMEST, TIME)

NOTE% IF NO CALLS TO ODATA/ODATAS ARE MADE, A CALL TO OPLOT WILL RESULT IN ALL VIEWS BEING AUTOMATICALLY SCALED AND CENERATED.

H-14]

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/CRBGEN/OPLOT

MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ORBIT PLOTTER DATA OUTPUT

DATE 05/09/77 TIME 20.17.01. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ORBIT PLOTTER DATA OUTPUT

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
٠	·	++++ BASIC CONTROL PARA	AMETERS ++++		
	o. o.	TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0	TRUEAN TIMEST
		++++ BAŞIC ORBIT DA	ATA ++++		
H-143	0. 0. 0. 6.08000E+05 6.08000E+05 0. 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0 0.0 0.0 0.0 0.0	ALAN APER OINC HP HA ECC SUNRA SUNDEC STERA STRDEC
		++++ PLANET-ORIENTED, ORIEN	TATION DATA ++++	•	
	300.000 270.000 0. 1 2 3	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS ROTATION ORDER IROTX, IROTY, IROTZ,		0.0 0.0 0.0 1 2 3	ROTX ROTY ROTZ
		++++ SPIN DATA ++	++		
	o. o.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CW=POS CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE	SITIVE)	0.0 0.0 0.0	CLOCK CONE RATE

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 05/09/77 TIME 20.17.02. SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ORBIT PLOTTER DATA SUTPUT ++++ COMPUTED OR INPUT ORBIT DATA ++++ VARIABLE DESCRIPTION VALUE VARIABLE DESCRIPTION VALUE SUN CIGMA ANGLE, DEGREES 0. SUN BETA ANGLE, DEGREES 60.000 STAR CIGMAS ANGLE, DEGREES ٥. STAR BETAS ANGLE, DEGREES Ο. ++++ PLANET --EARTH -- DATA ++++ NAME DESCRIPTION VALUE NAME DESCRIPTION VALUE WDS PLANET DS EMISS POWER 7.50732E+01 PALB PLANET ALBEDO WSS .300 PLANET SS EMISS POWER 7.50732E+01 PRAD PLANET RADIUS 2.09000E+07 PERIOD

PSD

GRAV

PLANET-SUN DISTANCE

PLANET GRAV CONSTANT

1.46792E+00

4.29000E+02

70

SOL

PAGE

ORBIT PERIOD

SOLAR CONSTANT AT PSD

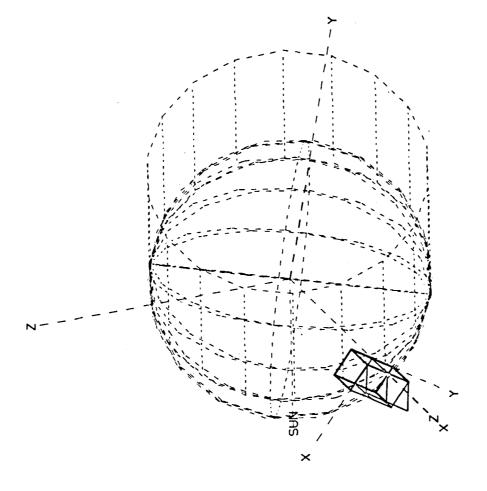
1.00000E+15

4.17312E+08

DA 05 /77 TIME	20.17.06.	THERMAL RADIATION AN. JIS STEM (TRASYS) CDC6500/SCOPE 3.4
MODEL=SAMPLE CONFIG=C ORBIT PLOTTER DATA OU		SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT
VIEW=3-D	SCALE= .3037	VIEW NUMBER=1
VIEW=BETA	SCALE= .3037	VIEW NUMBER=1
VIEW=CIGMA	SCALE= .3037	VIEW NUMBER=1
VIEW=SUN VIEW	SCALE= .3037	VIEW NUMBER=1
VIEW=3-D	SCALE= .3037	VIEW NUMBER=2
VIEW=BETA	SCALE= .3037	VIEW NUMBER=2
VIEW=CIGMA	SCALE= .3037	VIEW NUMBER=2
VIEW=SUN VIEW	SCALE= .3037	VIEW NUMBER=2
AIEM=3-D	SCALE= .3037	VIEW NUMBER=3
VIEW=BETA	SCALE= .3037	VIEW NUMBER=3
VIEW=CIGMA	SCALE= .3037	VIEW NUMBER=3
VIEW=SUN VIEW	SCALE= .3037	VIEW NUMBER=3

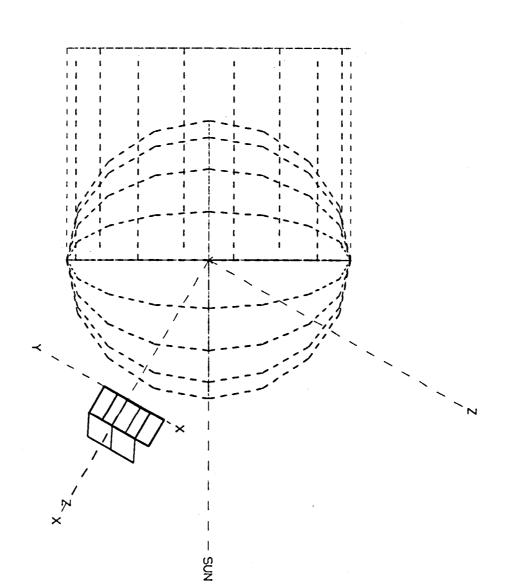
PAGE

H ADJUSTING FIELD LENGTH TO 042200 FOR THE OD SEGMENT



VIEW = 3-DSCALE = .3037 VIEW NUMBER = 1

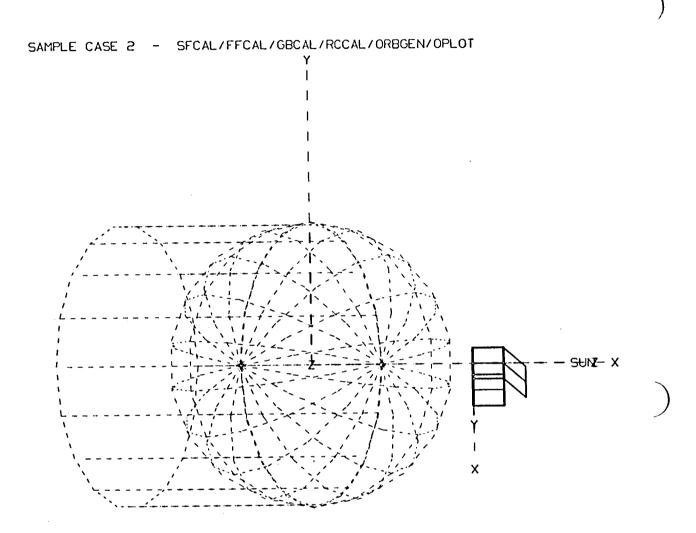
SAMPLE CASE 2 SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT



BETA .3037

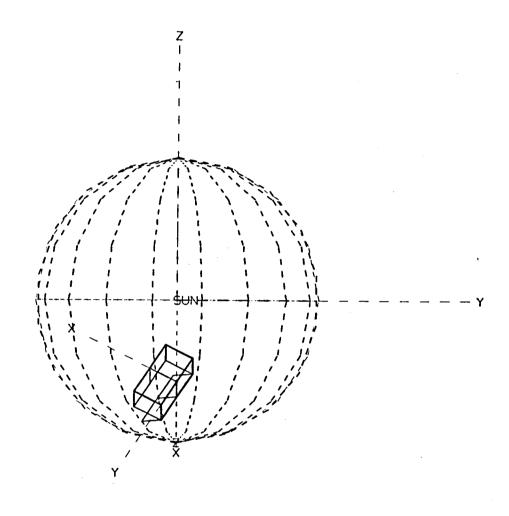
VIEW = SCALE = VIEW NUMBER =

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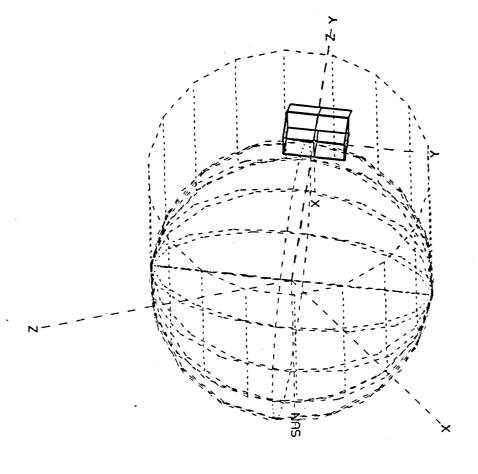
VIEW = CIGMA SCALE = .3037 VIEW NUMBER = 1

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT



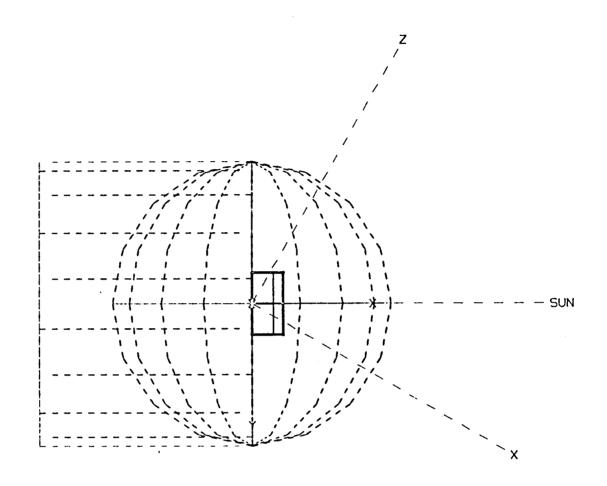
VIEW = SUN VIEW SCALE = .3037

VIEW NUMBER = 1

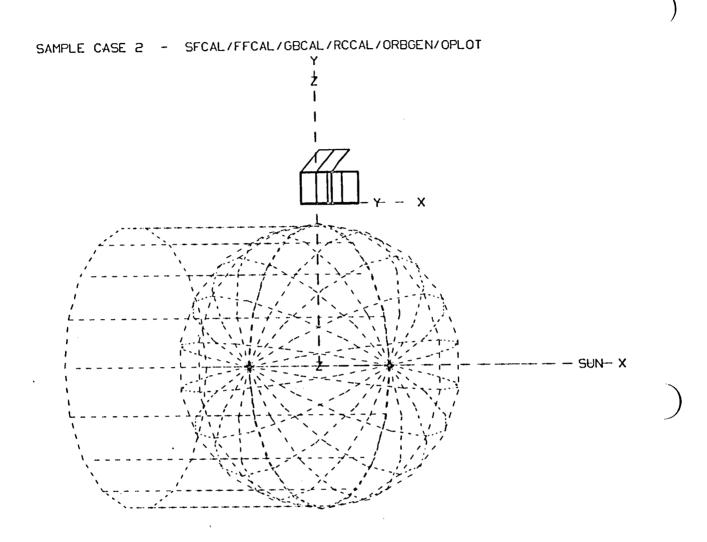


VIEW = 3-DSCALE = .303' VIEW NUMBER = 2

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

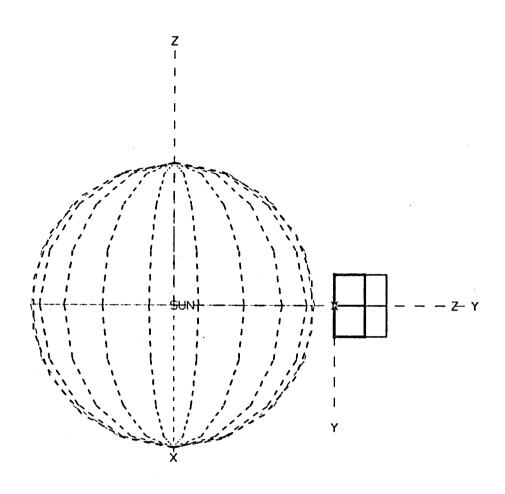


VIEW = BETA SCALE = .3037 VIEW NUMBER = 2



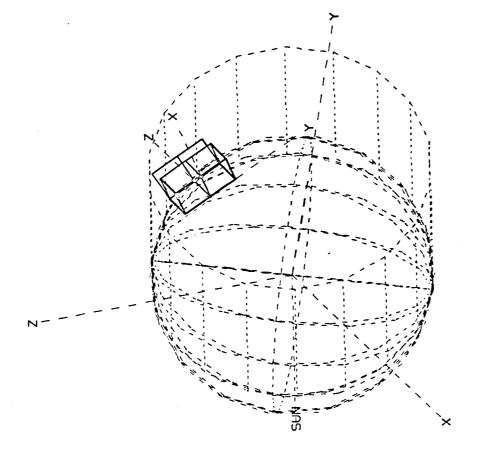
VIEW = CIGMA SCALE = .3037 VIEW NUMBER = 2

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT



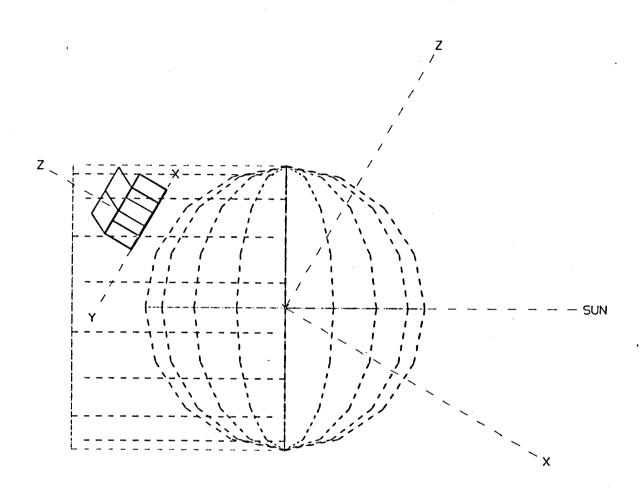
VIEW = SUN VIEW SCALE = .3037

VIEW NUMBER = 2

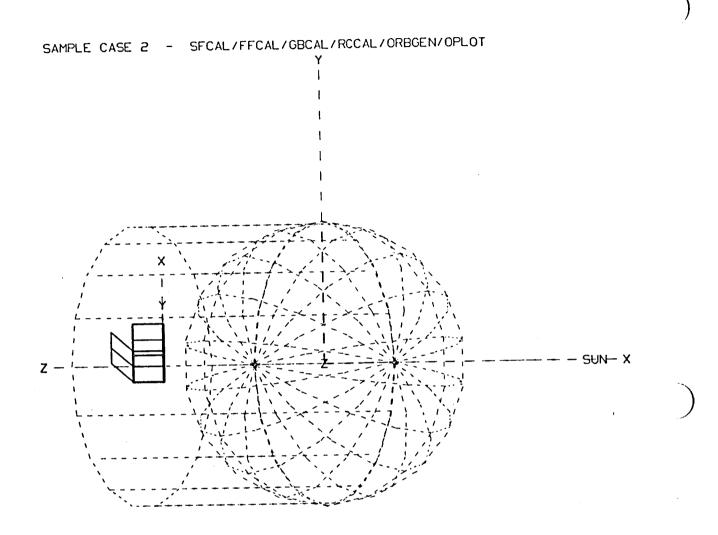


VIEW = 3-DSCALE = .3037VIEW NUMBER = 3

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT

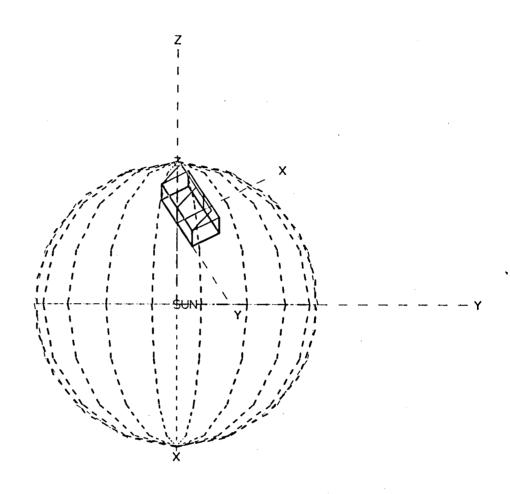


VIEW = BETA SCALE = .3037 VIEW NUMBER = 3



VIEW = CIGMA SCALE = .3037 VIEW NUMBER = 3

SAMPLE CASE 2 - SFCAL/FFCAL/GBCAL/RCCAL/ORBGEN/OPLOT



VIEW = SUN VIEW SCALE = .3037

VIEW NUMBER = 3

NASA/MARTIN MARIETTA THERMAL RADIATION ANALYSIS SYSTEM CDC6500/SCOPE 3.4

TITITITITIT TITITITITIT TT TTT TT TTT TTT II TRASYS TTT RRRRRRRRR TTT RRRRRRRRRR TTT RRR RRR TTTTTTT RRR RRR RRRRRRRRRR RRR RRR AAAAAAA RRR RRR AAAAAAAAA. RRR RRR AAAAAAAAAA RRRR RRR AAA AAA AAA AAA AAAAAAAAAA AAA AAA SSSSSSSSS AAA AAA AAA SSSSSSSSSS AAA SSS AAAAA AAAAA SSS SSSSSSSSS SSS YYYY SSS YYYY YYY YYY SSSSSSSSSS YYY YYY SSSSSSSSS YYY YYY YYYYY YYY SSSSSSSSS YYY YYY SSSSSSSSSS YYYYYY SSS SS SSS SSSSSSSSS SSS SSS SSSSSSSSSS SSSSSSSSS

PRE-PROCESSOR EXECUTION

 VERSION.MODIFICATION
 SC2E2

 MODIFICATION DATE
 05/09/77

 DATE OF RUN
 05/11/77

 TIME OF RUN
 08.26.05

 JOB NUMBER
 RGEX122

```
DATE 05/11/77 TIME 08.26.06. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION
                                                                                                         PAGE
MODEL = N/Ai
OPTION AND TITLE DATA BLOCKS
CARD ORGIN
                 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL
INPUT
                 HEADER OPTIONS DATA
INPUT
                 TITLE SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN
INPUT
                        SKIPPING SHADOW FACTOR TABLES ON RSI.
INPUT
                 С
                        RESTARTING FORM FACTORS.
INPUT
                 С
                        COMBINING FORM FACTORS.
                 С
INPUT
                        CALCULATING DIRECT INCIDENT FLUXES WITHOUT THE USE OF
INPUT
                 C
                        SHADOW FACTOR TABLES.
INPUT
INPUT
                        MODEL
                                    = SAMPLE
INPUT
                        RSI
                                    = RSTSAM2
INPUT
                        RSO
                                    = RSTSAM3
```

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION DATE 05/11/77 TIME 08.26.06.

PAGE

MODEL = SAMPLE TRASYS INFORMATION TO USER SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

OPTIONS DATA -INFO- OPTIONS ARE ...

BUILD EXECUTION CARD INFO = BUILD HOW TO USE TRASYS INFO FILE INFO = INFO PREPROCESSOR TRACE FLAGS INFO = ITRCPP INFO. ON DELETION OF THE RKCAL, LINK INFO = RKCAL INFO. ON USING STEP CARDS INFO = STEP INFO. ON TRASYS CONTROL CARDS INFO = CCARDS

END OF TRASYS INFORMATION FILE

DATE 05/11/77 TIME 08.26.07. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

MODEL = SAMPLE MODEL HISTORY

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MODEL NAME SAMPLE

MODEL TITLE SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MOD RUN JOB RUN RUN RSI RSO RTI RTO CMERG EMERG BCDOU TRAJ USER1 USER2 LABEL NUMBER DATA TIME TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE TAPE

RGEX153 05/04/77 11.07.24 RSTSAM AB RGEX1HG 05/09/77 19.56.39 RSTSAM RSTSAM2 RGEX122 05/11/77 08.26.06 RSTSAM2RSTSAM3

PAGE

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MODEL = SAMPLE SCURCE DATA EDIT DIRECTIVES

1	
CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

**** D D D I I I I I I	HEADER EDIT DATA *D.154.157 CREAD THE SHADOW FACTOR TABLES FROM RSI FOR USE IN CSAMPLE CASE 2 IN THE CALCULATION OF DIRECT FLUXES. C L SFCAL CSKIP THE SHADOW FACTOR TABLES ON RSI. THIS IS ACCOMPLISHED CBY REPLACING THE "L SFCAL" CARD WITH A "CALL RSTON" TO CSET THE SKIP FLAG. C CALL RSTON	154 155 156 157 158	OLD- OLD- OLD-	154 155 156 157	AB AA AA AC AC AC AC
**** I I I I I I I I I I I I	*I,161 C CCOMBINE FORM FACTORS C CALL RSTOFF CALL CMDATA(0,5HCASE3,2HFF,0,0,0) L CMCAL *D,163,165 CREAD THE GRAY BODY MATRICES FROM RSI C CALL GBDATA(BOTH,0,FF)	163 164 165 166 167 168	OLD- OLD-	163 164 165	AC AC AC AC AC AB AA AA
164 I I I I I I I I I I I I I I I I I I I	CCALCULATE GRAY BODY MATRICES USING COMBINED FORM FACTORS C CALL GBDATA(BOTH.O,CM) *D.170 CALL BKDATA(0.0.0.0.SPACE.999.0.0.5HCASE2)	170 171 172	OLD-	170	AC AC AB AC
I **** D D D D D	CALL RKDATA(0,0,0,0,SPACE,999,0,0,0,0) *D,178,184 C CMAKE ORBIT PLOTS C CALL ODATAS(1,0,0,0,0,0,0,0) CALL ODATAS(2,0,0,0,0,0,0) CALL ODATAS(3,0,0,0,0,0,0,0) L OPLOT		OLD- OLD- OLD- OLD- OLD-	178 179 180 181 182 183 184	AB AB AB AB AB AB

1

DATE 05/11/77 TIME 08.26.08.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

6

PAGE

	CAPD COCTN	100456	270 1 02/5670	2245670 2 2245670 4 224	570 5 22 45670 £ 22456	70 7 0245670 0	EDIT NO	OID EDIT	NO	LABEL
	CARD ORGIN	123430	0/8 1 23456/8	2345678 3 2345678 4 2345	0018 5 2345010 0 23450	76 7 2345678 8	S EDIT NO.	טנט פטוי	NU.	LABEL
	RSI		R SURFACE DAT				1	OLD-	1	AA
	RSI	C					2	OLD-	2	AA
	RSI			ATA BLOCK IS USED IN SAM			3	OLD-	3	AA
	RSI			ORTIONS OF IT BEING ACTIV	ATED FOR THE DIFFEREN	IT ·	4	OrD-	4	AA
	RSI		-CASES.				5	DLD-	5	AA
	RSI	C					6	OLD-	6	AA
	RSI	BCS	BOXINR	•			7	OLD-	7	AA
	RSI	S	SURFN	1			8	OLD-	8	AA
	RSI		TYPE	RECT			9	OLD-	9	AA
	RSI		ACTIVE	BOTTOM			10	OLD-	10	AA
	RSI		PROP	0.9,0.9			11	OLD-	11	AA
	RSI RSI		P1	1.0, 0.0, 1.0			12	OLD-	12	AA
	RSI		P2	1.0, 0.0, 0.0			13	OLD-	13	AA
	RSI		P3	1.0, 1.0, 0.0			14	OLD-	14	AA
	RSI	_	COM	* INNER RIGHT FRONT *			15	OLD-	15	AA
	RSI	S	SURFN	2 Prot			_	OLD-	16	AA
	RSI	*	TYPE	RECT BOTTOM			17	OLD-	17	AA
	RSI		ACTIVE PROP	0.9,0.9			18	OLD-	18	AA
	RSI		P1	1.0, 1.0, 1.0			19	OLD-	19	AA
H	RSI		P2	1.0, 1.0, 0.0			20	0rD-	20	AA
	RSI		P3	0.0, 1.0, 0.0			21 22	OFD- OFD-	21	AA
165	RSI		COM	* INNER RIGHT SIDE *			23	0L0-	22 23	AA AA
٠.	RSI	S	SURFN	3			23	OLD-	23	AA
	RSI	J	TYPE	RECT			25	OLD-	25	AA
	RSI		ACTIVE	TOP			26	DLD-	26	AA
	RSI		PROP	0.9.0.9			27	OLD-	27	AA
	RSI		P1	0.0, 0.0, 1.0			28	OLD-	28	ÄÄ
	RSI		P2	0.0, 0.0, 0.0			29	OLD-	29	AA
	RSI		P3	0.0, 1.0, 0.0				OFD-	30	AA
	RSI		COM	* INNER RIGHT BACK *			31	OLD-	31	à A
	RSI	S	SURFN	4			32	OLD-	32	AA
	RSI		TYPE	RECT			33	OLD-	33	AA
	RSI		ACTIVE	TOP			34	OLD-	34	AA
	RSI		PROP	0.9,0.9			35	OLD-	35	AA
	RSI		P1	1.0, 1.0, 0.0			36	OLD-	36	AA
	RSI		COM	* INNER RIGHT BOTTOM *			37	OLD-	37	AA
	RSI	BCS	BOXINL, IMGB	=BOXINR,NINC=10,IREFSF=10	000		38	OLD-	38	AA
	RSI	С					39	OLD-	39	AA
	RSI			CARD IMAGES BCS BOXINE IN			40	OLD-	40	AA
	RSI			BOXINL. THE INTERIOR OF			41	OLD-	41	AA
	RSI			FACILITATE THE INPUT OF	SAMPLE CASE 4 TO SHOW		42	OLD-	42	AA
	RSI		THE USE OF "!	SS" AND "ERN" NODES.			43	OLD-	43	AA
	RSI	С					44	OLD-	44	AA
			IMAGING SURF	_ : : : : : : : : : : : : : : : : : : :			30)			
			IMAGING SURF				30)			
			IMAGING SURFA				30)			
	RSI		IMAGING SURFA	• • • • • • • • • • • • • • • • • • • •	NERATING SURFACE (14) BCS (E	30)			
	RSI	R	REFNO	1000	·		45	OLD-	45	AA
	RSI		P1 P2	1.0, 0.0, 1.0			46	OLD-	46	AA
	1104		F 4	1.0, 0.0, 0.0			47	OLD-	47	AA

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

WODEL =	SAMP	.E	
SURFACE	DATA	INPUT	BLOCK.
1			

	1					010 5017	NO	LABEL
CARD	ORGIN	123456	78 1 2345678	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT				
RSI			Р3	= 0.0, 0.0, 0.0	48	OLD-	48	AA
RSI			COM	= * IMAGING PLANE *	49	OLD-	49	AA
RSI		BCS	LIDINR		50	OLD-	50	AA
RSI		S	SURFN	= 5	51	OLD-	51	AA
RSI		•	TYPE	= RECT	52	OLD-	52	AA
RSI			ACTIVE	= BOTTOM	53	OFD-	53	AA
RSI			PROP	= 0.9,0.9	54	OLD-	54	AA
RSI			P1	= 1.0, 1.0, 0.0	55	OLD-	55	AA
RSI			COM	= * INNER RIGHT LID *	56	OLD-	56	AA
RSI		S	SURFN	= 15	5 7	OLD-	57	AA
		3	IMAGSF	= 5	58	OLD-	58	AA
RSI			IREFSF	= 1000	59	0LD-	59	AA
RSI RSI			COM	= * INNER LEFT LID *		OLD-	60	AA
		BCS	BOXOUT		61	OLD-	61	AA
RSI		5	SURFN	= 21	62	GLD -	62	AA
RSI		5	TYPE	= BOX5	63	OLD-	63	AA
RSI				= OUT	64	OLD-	64	AA
RSI			ACTIVE	= NO	65	OLD-	65	AA
RSI			SHADE	= NU = 0.2,0.9	66	OLD-	66	AA
RSI			PROP		67	OLD-	67	AA
☐ RSI ∴ RSI			P1	= 1.01,-1.01, 1.01		OLD-	68	AA
—			P2	= 1.01, 1.01, 1.01		OLD-	69	AA
O RSI			P3	=-0.01, 1.01, 1.01		OLD-	70	AA
O RSI			P4	=-0.01, 1.01,-0.01	71	OLD-	71	AA
RSI			COM	= * OUTER SURFACES *		OLD-	72	AA
RSI		BCS	LIDOUT		73	OLD-	73	AA
RSI		S	SURFN	= 26		OLD-	74	AA
RSI			TYPE	= RECT		OLD-	75	AA
RSI			ACTIVE	≈ TOP		OLD-	76	AA
RSI			SHADE	= NO		OLD-	77	AA
RSI			PROP	= 0.2,0.9		OFD-	78	AA
RSI			P1	= 1.01,-1.01, 0.01	79	OLD-	79	AA
RSI			P2	= 1.01, 1.01, 0.01		OLD-	80	AA
RSI			P3	=-0.01, 1.01, 0.01			81	AA
RSI			COM	= * OUTER SURFACE OF LID *	81	OFD-	82	ÃÃ
RSI		С				OLD-		ÂÂ
RSI		C	THE NEXT TWO	BCS'S (MESSR AND MESSL) ARE ACTIVATED IN SAMPLE	83	OLD-	83 84	AA
RSI			CASE 4 ONLY.		84	OLD-		
RSI		Č			85	OLD-	85	AA
RSI		BCS	MESSR		86	OLD-	86	AA
RSI		S	SURFN	= 101	87	DLD-	87	AA
RSI		J	TYPE	= RECT	88	OLD-	88	AA
RSI			ACTIVE	= TOP	89	OLD-	89	AA
RSI			PROP	= 1.0,1.0	90	OLD-	90	AA
			P1	= 1.0, 0.0, 1.0	91	OLD-	91	AA
RSI			P2	= 1.0, 0.0, 0.0	92	OLD-	92	AA
RSI			P3	= 0.0, 0.0, 0.0	93	OLD-	93	AA
RSI				= * PRIMARY MESS NODE, RIGHT SIDE *	94	OLD-	94	AA
RSI		200	COM	Interest meas week	95	OLD-	95	AA
RSI		BCS	MESSL	- 111	96	OLD-	96	AA
RSI		S	SURFN	= 111 - psct	97	OLD-	97	AA
RSI			TYPE	= RECT	98	OLD-	98	AA
RSI			ACTIVE	= BOTTOM				

DATE 05/11/77 TIME 08.26.10. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION PAGE 8 MODEL = SAMPLE SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN SURFACE DATA INPUT BLOCK CARD ORGIN 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. RSI PROP = 1.0,1.0 99 OLD-AA 99 RSI P1 = 1.0, 0.0, 1.0 100 OLD-100 AA RSI P2 = 1.0, 0.0, 0.0OLD-101 101 AA RSI = 0.0, 0.0, 0.0 Р3 102 OLD-AA 102 RSI COM = * PRIMARY MESS NODE. LEFT SIDE * GLD-103 103 AΑ RSI 104 OLD-AA 104 RSI C----THE FOLLOWING BCS (LIDSP) IS ACTIVATED IN SAMPLE CASE 5 ONLY. 105 OLD-105 AA RSI С 106 010-106 AA RSI BCS LIDSP 107 OLD-107 AA RSI S SURFN = 200 108 OLD-108 AA RSI TYPE = RECT 109 CLD-109 AA RSI ACTIVE = BOTTOM OLD-110 110 AA RSI PROP = 0.1, 0.1111 OLD-111 AA RSI SPRI = 0.8 112 OLD-AA 112 RSI SPRS = 0.8 113 OLD-113 AA RSI P1 = 1.0,-1.0, 0.0 114 OFD-114 AA RSI P2 = 1.0, 1.0, 0.0 115 OLD-115 AΑ RSI P3 = 0.0, 1.0, 0.0 116 OLD-116 AA RSI COM = * SPECULAR LID *

117 OLD-

AA

117

DATE 05/11/77	TIME 08.26.13. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VER	SION	PAGE	9	
WODEL = SAMPLE BCS DATA INPUT	SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN BLOCK				
CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8	EDIT NO.	OLD EDIT	NO.	LABEL
		118	OLD-	118	AA
RSI	HEADER BCS DATA	119	OLD-	119	AA
RSI	BCS BOXINR	120	OLD-	120	AA
RSI	BCS BOXINL		DLD-	121	AA
RSI	BCS LIDINR ,0.,0.,1.,0.,-45.,0.		OLD-	122	AA
RSI	BCS BOXOUT		OLD-	123	AA
RSI	BCS LIDOUT ,0.,0.,1.,0.,-45.,0.		OLD-	124	AA
RSI	BCS MESSR		OFD-	125	ÂÃ
RSI	BCS MESSL				ÃÃ
RSI	BCS LIDSP ,0.,0.,1.,0.,-45.,0.	126	OLD-	126	AA

DATE 05/11/7	7 TIME 08.26.13.	THERMAL RADIATION	ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE	VERSION	PAGE	10	
WODEL = SAMPL CORRESPONDENC	E E DATA INPUT BLOCK	SAMPLE	CASE 3 - FFCAL/CMCAL,	/GBCAL/RCCAL/ORBG	EN			
CARD ORGIN	12345678 1 2345678	2 2345678 3 2345678	4 2345678 5 2345678 6 2	2345678 7 2345678	8 EDIT NO.	OLD EDI	T NO.	LABEL
RSI	HEADER CORRESPONDE	NCE DATA				01.0	400	
RSI	C				127	OLD-	127	AA
RSI		PONDENCE DATA FOR CAS	SE 2		128	OLD-	128	AA
RSI	C	TONDENCE DATA TON CA	JL 2		129	OLD-	129	AA
RSI	FIG CASE2				130	0L5-	130	AA
RSI	1	= 1,11,22			131	OLD-	131	AA
RSI	,	= 2,25			132	DLD-	132	AA .
RSI	รั	= 3,13,24			133	OLD-	133	AA
RSI	ă	= 4.14.21			134	OLD-	134	AA
RSI	5	= 5,15,26			135	OLD-	135	AA
RSI	12	= 12,23			136	OLD-	136	AA
RSI	C , 2	- 12,23			137	OLD-	137	AA
RSI		DONDENCE DATA FOR CAS	SE 3 TO COMBINE FORM FAC	27000	138	OLD-	138	AA
RSI	C	FUNDENCE DATA FOR CAS	SE 3 TO COMBINE FORM FAC	STURS	139	OLD-	139	AA
RSI	FIG CASE3.FF				140	OLD-	140	AA
RSI	TIG CASES, FF	- 4 44 00			141	OLD-	141	AA
RSI	2	= 1,11,22 = 2,25			142	OFD-	142	AA
RSI	3				143	OLD-	143	AA
RSI	3	= 3,13,24			144	OLD-	144	AA
RSI	5	= 4,14,21			145	OLD-	145	AA
H RSI	5 12	= 5,15,26			146	OLD-	146	AA
H	12	= 12,23			147	OLD-	147	AA

DATE 05/11/77 TIME 08.26.14.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE 11 .

MODEL = SAMPLE

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

CARD ORGIN

OPERATION DATA INPUT BLOCK (PASS 1) 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

RSI

HEADER OPERATIONS DATA

148 AA 148 OLD-

+++++ OPERATIONS DATA BLOCK (PASS 1) COMPLETE +++++

DATE 05/11/77 TIME 08.26.15. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION PAGE

MODEL = SAMPLE

DPERATION DATA INPUT BLOCK (PASS 2)

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION PAGE

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

12

	OPERATION DATA IN	IPUT BLOCK (PASS 2)				
	CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8	EDIT NO.	OLD EDIT	NO.	LABEL
	RSI	C	1.10	0.0		
	RSI	CBUILD THE CASE1 CONFIGURATION FOR SFCAL/FFCAL/GBCAL RESTART	149	OLD~	149	AA
	RSI	C C C C C C C C C C C C C C C C C C C	150	OLD-	150	AB
	PROG	STEP -1	151	OrD-	151	AA
	RSI	BUILD CASE1, BOXINR, BOXINL, LIDINR, BOXOUT, LIDOUT	-0			
	PROG	CALL BUILDC (BOXINR, GHCASE1)	152	OLD-	152	AA
	PROG	CALL ADD (BOXINL)	-0			
	PROG	CALL ADD (LIDINR)	-0			
	PROG	CALL ADD (BOXOUT)	-0			
	PROG	CALL ADD (LIDOUT)	-0			
	RSI	c contract the contract to	-0			
	INPUT	CSKIP THE SHADOW FACTOR TABLES ON RSI. THIS IS ACCOMPLISHED	1,53	OLD-	153	AA
	INPUT	CBY REPLACING THE "L SECAL" CARD WITH A "CALL RSTON" TO	154			AC
	INPUT	CSET THE SKIP FLAG.	155			AC
	INPUT	C SEV THE SKIT TERM.	156			AC
	INPUT	CALL RSTON	157			AC
	RSI	C C C C C C C C C C C C C C C C C C C	158			AC
	RSI	CREAD THE FORM FACTOR MATRIX FROM RSI	159	OLD-	158	AA
	RSI	C C	160	OLD-	159	AB
H	RSI		161	0LD-	160	AA
	INPUT	L FFCAL	162	OLD-	161	AA
	INPUT		163			AC
7	INPUT	CCOMBINE FORM FACTORS	164			AC
	INPUT		165			AC
	INPUT	CALL RSTOFF	166			AC
	INPUT	CALL CMDATA(0,5HCASE3,2HFF,0,0,0)	167			AC
	RSI	C CMCAL	168			AC
	INPUT	C	169	OLD-	162	AA
	INPUT	CCALCULATE GRAY BODY MATRICES USING COMBINED FORM FACTORS	170			AC
	INPUT	C	171			AC
	RSI	CALL GBDATA(BOTH.O.CM)	172			AC
	RSI	L GBCAL	173	OLD-	166	AA
	RSI	C .	174	OLD-	167	AA
	RSI	CCALCULATE AND PUNCH RADKS WITH COMBINED NODES	175	OLD-	168	AB
		C	176	OLD-	169	AB
	INPUT	CALL RKDATA(0,0,0,0,SPACE,999,0,0,,,0)	177	325	103	AC
	RSI	L RKCAL	178	OLD-	171	AA
	RSI	c .	179	OLD-	172	AB
	RSI	CDEFINE ORBIT AND VEHICLE ORIENTATION (CIRCULAR - PLANET-ORIENTED)	180	OLD-	173	AB
	RSI.		181	OLD-	174	AB
	RSI	CALL ORBIT2(EAR.0.60.,0,0,0,100.*6080.,100.*6080.)		OLD-	175	AB
	RSI	CALL DRIENT(4HPLAN,1,2,3,300.,2700.)		OLD-	176	AB
	PROG	C **	-0	0.0	170	AD
	PROG	C************************ ORBIT GENERATION STARTS HERE **********************************	-0			
	RSI	CORBGEN CIRP,0.,180.,2,AQ	-	OLD-	177	AB
	PROG	C .	-0	0.0	177	AD
	PROG	STEP 10000 *	-ō			
	PROG	TRUEAN = 0.	-0			
	PROG	TRUANF = 180.000 *	-0			
	PROG	TRUANI = 0.	-0			
	PROG	IAI = 0	-0			
	PROG	IAS = 0	-0			
	PROG	PLTYPE = GHPLSAVE	-0			
	PROG	CALL DICOMP(0,0,0)	-			
	PROG	L DICAL	-0			
t	PROG	NSPFF = 10000	-0			
		· · · · · · · · · · · · · · · · · · ·	-0			

				_
•	PLTYPE = 6HPLREAD		*	-0
PRO	OG PLTYPE = 6HPLREAD CALL AQDATA(IAI.IAS,0,0,0)		*	-o - o
PRO	***	•	*	-0 -0
PRO	DG L AQCAL		*	-0
PRO	OG STEP 10001		*	
PRO	DG TRUEAN = 90.000 CALL DICOMP(0,0,10000)		*	-0 -0
PRO	5.041		*	-0 -0
PRO	OG L DICAL CALL AQDATA(IAI,IAS,0,0,0)		*	-
PRO			*	-0
PRO	OG L AQCAL		*	-0
PRO	OG STEP 10002 180.000		*	-0
PRO	OC INVERN		*	-0
PRO	CALL DICOMP(0.0.10000)		*	-0
PRO	OG. L DICAL		*	-0
PRO	OG CALL AQDATA (IAI, IAS, 0,0,0)		*	-0
PRO	DG L AQCAL	4	*	-0
PRO	nc STEP 10003	GD TO 90400	*	-0
PRO	TE(SHADIN.LI.U.)	do 10 30400	*	-0
PRO	TRUEAN = SHAUIN-U.		*	-0
PRO	IF(TRUEAN.LI.TRUANI.OR.	GD TD 90000	*	-0
PRO	TRUFAN.GI.IRUANE)	GO 10 30000	*	-0
PRO	CALL STOMBIN AHVERULIUUUUI		*	-0
PRO	DICAL		*	-0
PRO	CALL ACDATA (TAT. TAS. 0.0.0)		*	-0
PRO	. 40041		*	-0
	ROG 90000 CONTINUE		*	-0
	STEP 10004		*	-0
	TRUFAN = SHADIN+0.1		*	-0
	IF (TRUEAN. LI. IRUANI. OR.	20100	*	-0
ידיי	1 TRUEAN.GT.TRUANF)	GO TO 90100	*	-0
1 PR	ROG CALL DICOMP(0,0,10000)		*	-0
~ 1	DICAL		*	-0
	$- \qquad \qquad - \qquad \qquad - \qquad \qquad - \qquad \qquad \qquad - \qquad \qquad \qquad \qquad \qquad \qquad$		*	-0
			*	-0
	CONTINUE		*	-0
	STEP 10005		*	-0
	TRUEAN = SHAOUT+0.1		*	-0
	ROG IF(TRUEAN.LT.TRUANI.OR.		•	-0
	1 TRUEAN.GT.TRUANF)	GD TO 90200	*	-0
	CALL DICOMP(D 4H7ERO.10000)			-0
	DICAL		*	-0
	CALL ADDATA (TAT TAS. 0.0.0)		•	-0
	ACCAL			-ō
	ROG CONTINUE			-0
	1000			-0
PR	ROG STEP TOUGH TRUEAN = SHADUT-0.1		Ţ.	-ō
	TRUEAN - SHAGUT-0.1		Ţ.,	-0
	TECTRITEAN LT TRIANT OR.			-0
	4 TOUGAN OT TRHANF)	GO TO 90300		-0
	CALL DICOMB(0.0 10000)		*	-0
	, DICAL			-0
	- CALL ADDATA (TAT TAS.O.O.O)		*	-0
	ACCAL		*	-0
	CORDO CONTINUE		*	-0
	ROG 90300 CONTINUE		*	-0
	ROG 90400 CONTINUE CALL QODATA(3HALL,0,0,0,0,0,	0,0)	*	-0
PF		-	*	-0
PF	PROG L QOCAL		*	-0
	PROG C C**********************************	ATION ENDS HERE ******	******	
P	-100	n	*	-0
PI	PROG			185
R.	RSI END OF DATA			

AA

DATE 05/11/77 TIME 08.26.18. THERMAL RADIATION ANALYSIS SYSTEM (

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

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MODEL = SAMPLE
PROCESSOR CORE ALLOCATION

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

THE FOLLOWING IS THE PROCESSOR CORE ALLOCATION FOR THOSE SEGMENTS WHICH WILL BE LOADED IN THIS EXECUTION (APPROX.) ...

```
OCTAL/DECIMAL
TRASYS (0) SEGMENT ..... 033510/ 14152
OPERATIONS DATA (NOT KNOWN AT THIS TIME)..... 075000/ 31232
INITALIZATION SEGMENT ...... 037600/ 16256
FORM FACTOR SEGMENT ..... 100100/ 32832
DIRECT FLUX SEGMENT ..... 103000/ 34304
GRAY BODY SEGMENT ..... 052500/ 21824
ABSORBED Q-S SEGMENT ..... 042100/ 17472
-QO- SEGMENT ..... 051700/ 21440
RADATION CONDUCTOR SEGMENT ..... 050000/ 20480
FORM FACTOR COMBINING SEGMENT ..... 047700/ 20416
GRAY BODY DYNAMIC COMMON ...... 004600/ 2432
RADIATION CONDUCTOR DYNAMIC COMMON ..... 000574/
                                              380
FORM FACTOR COMBINING DYNAMIC COMMON ..... 000574/
                                              380
GRAY BODY MINIMUM - MAXIMUM CORE ...... 052401/ 21761 - 052401/ 21761
-QO- MINIMUM - MAXIMUM CORE ...... 046255/ 19629 - 051665/ 21429
RADIATION CONDUCTOR MINIMUM - MAXIMUM CORE .... 047514/ 20300 - 047760/ 20464
FORM FACTOR COMBINING MINIMUM - MAXIMUN CORE ... 047411/ 20233 - 047607/ 20359
          1++ THE FFPROG SEGMENT APPEARS TO BE TOO LONG FOR AMOUNT OF CORE (075000B) AVAILABLE
++CAUTION
          2++ THE DIPROG SEGMENT APPEARS TO BE TOO LONG FOR AMOUNT OF CORE (075000B) AVAILABLE
++CAUTION
```

MINIMUM CORE NEEDED FOR PROCESSOR EXECUTION 103000/ 34304

MAXIMUM CORE NEEDED FOR PROCESSOR EXECUTION 103000/ 34304

AMOUNT OF CORE THAT WILL BE USED BY PROCESSSOR . 103000/ 34304

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MODEL = SAMPLE WRAP UP OF THE PRE-PROCESSOR SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

CAUTION MESSAGE(S) OCCUR FOLLOWING THE FIRST 100 OR LESS EDIT SEQUENCE NUMBER(S) LISTED BELOW ...

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DATE 05/11/77 TIME 08.26.19. THERMAL F	RADIATION AN	ALYSIS S	YSTEM (TRASYS')	CDC6500/	SCOPE VER	SION
MODEL = SAMPLE WRAP UP OF THE PRE-PROCESSOR	SAMPLE C	ASE 3 -	FFCAL/CMCAL/G	BCAL/RCCA	L/ORBGEN	
PRE-PROCESSOR ACCOUNTING INFORMATION	CP-SEC	PP-SE	C DYM-STORAGE	•		
SOURCE EDITING				-		
DOCUMENTATION DATA PRE-PROCESSING		^	• • •			
QUANTITIES DATA PRE-PROCESSING	013	1	266			
ARRAY DATA PRE-PROCESSING	0.	0	0			
SURFACE DATA PRE-PROCESSING (PASS 1)	1.167	3	64			
SURFACE DATA PRE-PROCESSING (PASS 2)	212		1141			
BCS DATA PRE-PROCESSING	140	1	186			
FORM FACTOR DATA PRE-PROCESSING	0.	0	0			
SHADOW DATA PRE-PROCESSING	0.	0	0			
FLUX DATA PRE-PROCESSING	0.	0	n			
CORRESPONDENCE DATA PRE-PROCESSING	189	0	101			
OPERATIONS DATA PRE-PROCESSING	3.005	4	879			
SUBROUTINE DATA PRE-PROCESSING	247	1	Ō			
SEQUENTIAL TAPE INITIATION	025	0	0			
TOTAL CP TIME FOR PRE-PROCESSOR	6.738	DECIMAL	SECONDS OR 0000	07 OCTAL	SECONDS	
TOTAL PP TIME FOR PRE-PROCESSOR	19	DECIMAL	SECONDS OR 0000	23 OCTAL	SECONDS	
MINIMUM DYNAMIC STORAGE NEEDED BY PRE-PROCESSOR	1141	DECIMAL	WORDS			
DYNAMIC STORAGE AVAILABLE TO PRE-PROCESSOR	3384	DECIMAL	WORDS			
MINIMUM CORE NEEDED FOR PRE-PROCESSOR EXECUTION	071000	OCTAL	WORDS			
* * * * * * * * * * * * * * * * * * *	÷					

PAGE

NORMAL TERMINATION BY PRE-PROCESSOR

THERMAL RADIATION ANALYSIS SYSTEM CDC6500/SCOPE 3.4

TTTTTTTTTTT TTTTTTTTTTT TT TTT TT TTT T	000000000			TRASYS II	
TIT TITT TTITTT	RRRRRRR RRRRRRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR	AAAAAA AAAAAAAA AAA AAA AAA AAA AAAAAAAA	\$	YYYY YYYY YYY YYY YYY YYY YYYYY YYYY Y	
				******	\$\$\$ \$\$\$\$\$\$\$\$\$\$\$\$ \$\$\$ \$\$\$ \$\$\$\$\$\$\$\$\$\$\$\$\$

PRE-PROCESSOR EXECUTION

LATEST LIBRARY MOD. VER NUMBER SL2E1
LAST LIBRARY MODIFICATION DATE 05/09/77

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PAGE 2

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 PROCESSING OPERATIONS DATA

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

NODE	BCS	AREA	ALPH	EMISS	SURF. TYPE	ACTIVE	COMMENTS
1 2 3 4 11 12 13 14 5 15 22 23 24 25 26	BOXINR BOXINR BOXINR BOXINL BOXINL BOXINL LIDINR LIDINR LIDINR BOXOUT BOXOUT BOXOUT BOXOUT LIDUT	1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 2.06040 2.06040 1.04040 2.06040	.900 .900 .900 .900 .900 .900 .900 .200 .2	.900 .900 .900 .900 .900 .900 .900 .900	RECTANGLE	BOTTOM BOTTOM TOP TOP BOTTOM BOTTOM TOP TOP TOP TOP TOP TOP	INNER RIGHT FRONT INNER RIGHT SIDE INNER RIGHT BACK INNER RIGHT BOTTOM INNER RIGHT SIDE INNER RIGHT SIDE INNER RIGHT BACK INNER RIGHT BOTTOM INNER RIGHT BOTTOM INNER RIGHT LID INNER LEFT LID OUTER SURFACES

NODE, AREA, AND PROPERTIES ARRAYS HAVE BEEN WRITTEN ON THE -RSO- TAPE BY -BUILDC+ (ACCESS NUMBER= 1)

ADJUSTING FIELD LENGTH TO 100100 FOR THE FF SEGMENT

DATE 05/11/77 TIME 08.27.01.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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3

MODEL=SAMPLE CONFIG=CASE1 STEP=+1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

FORM FACTORS AND COMBINED FORM FACTORS - USER INPUT AND DEFAULT PARAMETERS

VARTABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
FFACC	.0500	.0500	ORIENTATION ACCURACY PARAMETER SHADOWING ACCURACY PARAMETER PARAMETER TO ELIMINATE SMALL FORM FACTORS OVER RIDE SHADOWING PARAMETER PARAMETER TO PUNCH FORM FACTORS FLAG FOR COMPREHENSIVE FF AND CM PRINT RATIO FOR USING SUB-NODE TECHNIQUE FLAG FOR COMBINING FORM FACTORS	N/A
FFACCS	.1000	.1000		N/A
FFMIN	1.0E-06	1.0E-06		N/A
FFNOSH	SHAD	SHAD		(SHAD, NOSH)
+FFPNCH	NO	NO		(YES, NO)
FFPRNT	YES	YES		(YES, NO, FF, CM, RB)
FFRATL	15.0	15.0		N/A
FFCMB	CORR	CORR		(YES, NO, AUTO, CORR)

^{+ -}FFPNCH WILL DEFAULT TO -YES- ON CALCULATED VALUES IF THE -RSO- FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

HEADER MISMATCH ON UNIT -RSI

LABEL = CASE1 . RST LABEL = SFCAL

CONFIG | = FFCAL , RST CONFIG =

ORBIT POINT= 0, RST ORB. PT=

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* RESTARTING -FFCAL - DATA FOR CONFIGURATION -CASE1 - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1HG ON 05/09/77

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MODEL=SAMPLE CONFIG=CASE1 STEP==1 FORM FACTOR CALCULATION LINK.

NODE	AREA	ALPH	EMISS
1	1.00000	.900	.900
2	1.00000	.900	.900
3	1.00000	.900	.900
4	1.00000	.900	.900
11	1.00000	.900	.900
12	1.00000	.900	.900
13	1.00000	.900	.900
14	1.00000	.900	.900
5	1.00000	.900	.900
15	1.00000	.900	.900
21	2.06040	.200	.900
22	2.06040	.200	.900
23	1.04040	.200	.900
24	2.06040	.200	.900
25	1.04040	.200	.900
26	2.06040	.200	.900

NUMBER OF NODES = 16 NUMBER OF SURFACES = 16

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA) (UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE I	NODE J	COMPUTATION	FIR(I,J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSDL(J.I) W/SHAD	FF(I,J) WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ	
1 1 1 1 1 1 1	2 3 4 12 13 14 5 15 FFSUM	RSI RSI RSI RSI RSI RSI RSI RSI	.214256 .203695 .214256 .033882 .086031 .039182 .138020 .054683 ROW CP T	.214256 .203695 .214256 .033882 .086031 .039182 .138020 .054683	.214256 .203695 .214256 .033882 .086031 .039182 .138020 .054683	.214256 .203695 .214256 .033882 .086031 .039182 .138020	.214256 .203695 .214256 .033882 .086031 .039182 .138020	1.00000 1.00000 1.00000 1.00000 1.00000 1.00000	1.000000 1.000000 1.000000 1.000000 1.000000 1.000000 1.000000	0. 0. 0. 0. 0.	0 0 0 0 0 0	0 0 0 0 0 0 0	20 20 20 20 20 20 20 20 20 20 20 20 20 2
2 2 2 2 2 2 2 2	3 4 11 12 13 14	RSI RSI RSI RSI RSI RSI	.214256 .214256 .033882 .069571 .033882 .033882	.214256 .214256 .033882 .069571 .033882 .033882	.214256 .214256 .033882 .069571 .033882 .033882	.214256 .214256 .033882 .069571 .033882 .033882	.214256 .214256 .033882 .069571 .033882 .033882	1.000000 0. 1.000000 1.000000	1.000000 1.000000 0. 1.000000 1.000000 1.000000	0. 0. 0. 0.	00000	0 0 0 0 0	30 30 30 30 30 30 30 30 30 30 30 30 30 3

DATE 05/11/77 TIME 08.27.02.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)

(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

						·					
NOD	E I	NODE J COMPUTATION	FIR(I.J) FIR(J.I) W/SHAD W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF(I,J) SHAD.I WO/SHAD FACTOR	R SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ	
	2 2	15 RSI FFSUM = .9466	.034976 .034976 ROW CP TIME =	.034976 .090	.034976	.034976 1.00000	0 1.000000	0.	0	0	UN
	3	4 RSI	.214256 .214256	.214256	.214256	.214256 1.00000		ο.	0	0	UN
	3	11 RSI	.086031 .086031	.086031	.036031	.086031 0.	0.	0.	0	0	UN
	3	12 RSI 14 RSI	.033882 .033882 .039182 .039182	.033882	.033882	.033882 1.00000		Ö٠	0	0	UN
	3	5 RS1	.051908 .051908	.039182 .051908	.039182	.039182 1.00000		0.	0	0	UN
	3	15 RSI	.012000 .012000	.012000	.012000	.012000 1.00000		0.	0	0	UN
	3	FFSUM = .8552	ROW CP TIME =	.045	1012000	.012000 1.00000	0 1.000000	0.	U	U	UN
						•					
H-	4	11 RSI	.039182 .039182	.039182	.039182	.039182 0.	0.	0.	0	0	UN
<u>, </u>	4	12 RSI	.033882 .033882	.033882	.033882	.033882 1.00000		0.	0	0	UN
181	4	13 RSI	.039182 .039182	.039182	.039182	.039182 1.00000		٥.	Ō	0	บท
Η-	4	5 RSI 15 RSI	.109433 .109433	.109433	.109433	.109433 1.00000		0.	0	0	UN
	4	FFSUM = .9215	.057045 .057045 ROW CP TIME =	.057045 .047	.057045	.057045 1.00000	0 1.000000	0.	0	0	UN
	11	12 RSI	.214256 .214256	.214256	.214256	.214256 1.00000	0 1.000000	0.	0	0	UN
	11	13 RSI	.203695 .203695	.203695	.203695	.203695 1.00000	0 1.000000	ō.	ō	ō	UN
	11	14 RSI	.214256 .214256	.214256	.214256	.214256 1.00000	1.000000	Ö.	0	0	UN
	11	5 RSI	.054683 .054683	.054683	.054683	.054683 1.00000		0.	O	0	UN
	11	15 RSI	.138020 .138020	.138020	.138020	.138020 1.00000	1.000000	٥.	0	0	UN
	11	FFSUM = .9840	ROW CP TIME =	.039							
	12	13 RSI	.214256 .214256	.214256	.214256	.214256 1.00000	0 1.000000	0.	0	0	UN
	12	14 RSI	.214256 .214256	.214256	.214256	.214256 1.00000		0.	0	0	UN
	12	5 RSI	.034976 .034976	.034976	.034976	.034976 1.00000		0.	ő	ŏ	UN
	12	15 RSI	.097637 .097637	.097637	.097637	.097637 1.00000		0.	0	Õ	UN
	12	FFSUM = .9466	ROW CP TIME =	.031			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•	v		
	13	14 RSI	.214256 .214256	.214256	.214256	.214256 1.00000	1.000000	0.	0	0	UN
		• • • • • • • • • • • • • • • • • • • •	1214200 1214200				1.000000	U·	U	U	UN

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

DATE 05/11/77 TIME 08.27.02.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

		(9.999999	-INDICALE	3 011111101111	2 ,,,,,	_								
NOD	E I	NODE J COM	PUTATION	FIR(I.J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSDL(J,I) W/SHAD	FF(I,J) WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ	
	13 13 13	5 RS 15 RS FFSUM =		.012000 .051908 ROW CP T	.012000 .051908 TIME =	.012000 .051908 .055	.012000 .051908	.012000 .051908	1.000000	1.000000	0. 0.	0	0	UN
	14 14 14	5 RS 15 RS FFSUM ≠		.057045 .109433 ROW CP 1	.057045 .109433 TIME =	.057045 .109433 .018	.057045 .109433	.057045	1.000000	1.000000	0.	0	0	UN UN
H-	5	FFSUM =	.5557	ROW CP 1	TIME =	.007								
	15	FFSUM =	.5557	ROW CP	TIME =	.007								
182	21	FFSUM =	0.	ROW CP	TIME =	.004								
	22	FFSUM ≠	0.	ROW CP	TIME =	.002								
	23	FFSUM =	٥.	ROW CP	TIME =	.004								
	24	FFSUM =	0.	ROW CP	TIME =	.004								
	25	FFSUM =	0.	ROW CP	TIME =	.003								,

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI, RTI, OR CARD INPUT)

(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE I NODE J COMPUTATION FIR(I.J) FIR(J.I) FSOL(I.J) FSOL(J.I) FF SHAD.IR SHAD.SOL CP TIME W/SHAD W/SHAD W/SHAD WO/SHAD FACTOR FACTOR (SEC)

26 FFSUM = 0. ROW CP TIME = .039

DATE 05/11/77 TIME 08.27.03. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM
19840 138552 23- 0.	29466 149215 24- 0.	38552 55557 25- 0.	49215 155557 26- 0.	119840 21- 0.	129466 22- 0.

TOTAL TIME FOR FORM FACTOR SEGMENT .842

TOTAL TIME SINCE START OF RUN 29.058

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 047700 FOR THE CM SEGMENT

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DATE 05/11/77 TIME 08.27.06. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR COMBINING LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

NODE	AREA	ALPH	EMISS	TRANS(UV)	TRANS(IR)	SPECULAR REFL(UV)	SPECULAR REFL(IR)
1	4.060E+00	5.448E-01	9.000E-01	0.	0.	0.	0.
2	2.040E+00	5.431E-01	9.000E-01	0.	0.	0.	0.
3	4.060E+00	5.448E-01	9.000E-01	0.	0.	0.	0.
4	4.060E+00	5.448E-01	9.000E-01	0.	0.	0.	0.
12	2.040E+00	5.431E-01	9.000E-01	0.	0.	0.	0.
5	4.060E+00	5.448E-01	9.000E-01	0.	0.	2.939E-21	2.939F-21

NUMBER OF NODES AFTER COMBINING = 6

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR COMBINING LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

NODI	E I	NODE J	CO	MPUTATION	FE(I,J) W/SHAD	FE(J,I) W/SHAD	FA(I,J) W/SHAD
	1 1 1 1	2 3 4 12 5		COMB COMB COMB COMB	.061112 .142708 .124834 .061112 .094918	.121612 .142708 .124834 .121612 .094918	.061112 .142708 .124834 .061112 .094918
	1	FF SUM	l =	.4847			
	2 2 2	3 4 12 5		COMB COMB COMB	.121612 .121612 .034097 .064994	.061112 .061112 .034097 .032660	.121612 .121612 .034097 .064994
	2	FF SUM	1 =	.4639		_	
H	3 3 3	4 12 5		COMB COMB	.124834 .061112 .031478	.124834 .121612 .031478	.124834 .061112 .031478
.186	3	FF SU	/i =	.4212			
	4	12 5		COMB COMB	.061112	.121612 .082001	.061112
	4	FF SU	vi =	.4539			
	12	5		COMB	.064994	.032660	.064994
	12	FF SU	V) =	.4639			
	5	FF SU	M =	.2737			

DATE 05/11/77 TIME 08.27.07. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 FORM FACTOR COMBINING LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

COMBINED FORM FACTOR SUMS FROM NODE I

NODE I - FF SUM NODE I -FF SUM NODE I - FF SUM NODE I - FF SUM NODE I -FF SUM

1 - .4846843 2 - .4639281 3 - .42124404 - .4538919 12 - .4639281 5 - .2737176

COMBINED NODE, AREA, AND PROPERTIES ARRAYS HAVE BEEN WRITTEN ON THE -RSO- TAPE BY THE FORM FACTOR COMBINING LINK. (ACCESS NUMBER = 2)

ADJUSTING FIELD LENGTH TO 052500 FOR THE GB SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 05/11/77 TIME 08.27.09.

MODEL=SAMPLE CONFIG=CASE1 STEP==1 GRAY BODIES COMPUTATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/DRBGEN

GREY BODIES

VAR'IABLE CURRENT DEFAULT

DEFINITION

OPTIONS

VALUE NAME

WAVEBAND DEFINITION PARAMETER NONE BOTH GBWBND

(IR, SOL, BOTH)

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GRAY BODIES STORED FOR CONFIGURATION CASE1 IR

GRAY BODIES STORED FOR CONFIGURATION CASE1 SOL

TOTAL TIME TO COMPUTE GRAY BODIES .26

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 050000 FOR THE RC SEGMENT

H-188

DATE 05/11/77 TIME 08.27.12.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1
RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

			RADIATION CONDUCTORS	
VARIABLE NAME	CURRENT VALUE	DEFAULT .	DEFINITION	OPTIONS
RKPNCH RKMIN IRKCN RKSP IRKNSP SIGMA RKAMPF RKTAPE RFRAC RTOL NERN	PUN .0001 1 SPACE 999 1.71E-09 1.00 NO 7.0E-01 .990	NO 0.0001 1 NO 32767 1.713E-9 1.0 NO 0.7 0.99	PUNCH/NO PUNCH PARAMETER FOR RADKS PARAMETER TO ELIMINATE SMALL RADK S INITIAL RADIATION CONDUCTOR ID NUMBER MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE SPACE NODE ID NUMBER STEFAN-BOLTZMANN CONSTANT AREA MULTIPLYING FACTOR PARAMETER TO OUTPUT TO BCD TAPE SIGNIFICANT RADIATION FRACTION DECIMAL FRACTION OF LAST RADK SAVED EFFECTIVE RADIATION NODE (ERN) NUMBER	(YES.NO)

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 05/11/77 TIME 08.27.12.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN MODEL=SAMPLE CONFIG=CASE1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK.

PAGE

SPECIAL RADIATION NODES

NONE

MESS SPECIAL NODES PRIMARY SECONDARY

NONE

DATE 05/11/77 TIME 08.27.12. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

RADIATION CONDUCTOR (RADKS) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

	PUNCHED	RADKS	_	1.	1,	2.	1.7130000E-09*	2.0840566E-01
			-	2.	1.	3,	1.7130000E-09*	4.8102261E-01
	PUNCHED	RADKS	_	3,	1.	4.	1.7130000E-09*	4.2452057E-01
		RADKS	~	4,		12,	1.7130000E-09*	
		RADKS	_	5,	1,	-		2.0840566E-01
	PUNCHED		_		1,	5,	1.7130000E-09*	3.2007624E-01
		RADKS		6,	2,	3,	1.7130000E-09*	2.0770403E-01
		RADKS	-	7,	2,	4,	1.7130000E-09*	2.0789586E-01
		RADKS	-	8,	2,	12,	1.7130000E-09*	6.0547347E-02
		RADKS	-	9.	2,	5.	1.7130000E-09*	1.1217556E-01
	PUNCHED	RADKS	_	10,	3,	4.	1.7130000E-09*	4.2278235E-01
	PUNCHED	RADKS	_	11,	3,	12	1.7130000E-09*	2.0770403E-01
	PUNCHED	RADKS	_	12.	3,	5.	1.7130000E-09*	
		RADKS		13,		•		1.1431716E-01
				·	4,	12,	1.7130000E-09*	2.0789586E-01
4		RADKS	_	14,	4,	5,	1.7130000E-09*	2.7790347E-01
•	PUNCHED	RADKS	-	15,	12,	5,	1.7130000E-09*	1.1217556E-01
		RADKS	-	16,	1,	999.	1.7130000E-09*	1.9916581E+00
•	PUNCHED	RADKS	-	17.	2,	999.	1.7130000E-09*	1.0352453E+00
-	PUNCHED	RADKS	-	18,	з,	999.	1.7130000E-09*	2.2032757E+00
	PUNCHED	RADKS	_	19.	4.	999,	1.7130000E-09*	2.0954493E+00
	PUNCHED	RADKS	-	20.	12.	999.		
			_	•		•	1.7130000E-09*	1.0352453E+00
	PONCHED	RADKS	_	21,	5,	999,	1.7130000E-09*	2.7105771E+00

TOTAL TIME TO COMPUTE AND CONDENSE RADKS = .31

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		
	SHAD .250	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR SHADOWING ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS
	.100 0 0.	FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA TRUE ANOMALY ANGLE. DEGREES	SOL, PLAN, ALL	ALL 0 0.0 0.0	ICALFL NSPFF TRUEAN TIMEST
	0.	INITIAL TIME (AT PERIAPSIS) ++++ BASIC JEB	ITT DATA ++++	•	
				0.0	ALAN
==	o. o.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES		0.0 0.0	APER OINC
н-192	0. 6.08000E+05 6.08000E+05	ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS		0.0 0.0 0.0	HP HA ECC
10	0. 0. 0.	ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES,		0.0	SUNRA SUNDEC STRRA
	0. 0.	REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0	STRDEC
		++++ PLANET-ORIENTED.	ORIENTATION DATA ++++		
	300.000 270.000 0.	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS		0.0 0.0 0.0 1 2 3	ROTX ROTY ROTZ
	1 2 3 3.000E+02 3.000E+01	ROTATION ORDER IROTX, IROTY, IRUTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES		0.0	SUNCL SUNCO PLCL
	0.	PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0	PLCO
		++++ SPIN DA	ATA ++++		
	0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CO	CW=POSITIVE)	0.0	CLOCK CONE
	0. 0. 0.	CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS		0.0	RATE TIMSP

DATE 05/11/77 TIME 08.27.14.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

++++++ NSTEP NO = 10000

++++ COMPUTED OR INPUT ORBIT DATA ++++

			O.,	ONDE! DAIR	TTTT	
VALUE	VARIABLE DESCRIPTION	N	***	VALUE	VARIABLE DESCRIPTION	4
60.000 0.	SUN BETA ANGLE, DEGREE STAR BETAS ANGLE, DEGR		O. SUN CIGMA ANGLE, DEG O. STAR CIGMAS ANGLE, D			EES
		++++ PLANET	EART	'H DATA ++	++	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300 2.09000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	WDS WSS
4.17312E+08	PLANET GRAV CONSTANT	GRAV		4.29000E+02	SOLAR CONSTANT AT PSD	SOL

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SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

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DATE 05/11/77 TIME 08.27.14. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

	SOLAR	DIRECT INCIDENT	FLUX FOR		E ANOMALY = +++	0.	TIME =	.00000
NODE NUMBER	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1 2 3 4 11 12 13 14 5 15 21 22 23 24 25	0. 9.40279E+01 0. 1.65122E+02 0. 0. 1.00547E+01 9.17345E+01 0. 0. 1.07250E+02 1.85762E+02 0.	0. 1.85762E+02 1.07250E+02 3.71525E+02 0. 0. 1.07250E+02 3.71525E+02 0. 0. 1.07250E+02 1.85762E+02	0. .5062 0. .4444 0. 0. .0938 .2469 0. 0. 1.0000	CALC CALC CALC CALC CALC CALC CALC CALC	0. .342 .730 1.131 1.143 1.152 1.501 1.841 1.850 1.859 1.868 2.322 2.726 2.736	9 81 64 81 9 64 81 9 86 81	0 6 9 0 0 8 7 0 0 0	
26	1.86871E+02	1.86871E+02	1.0000	CALC CALC	2.746 3.278	9 78	0 10	

TOTAL ELAPSED TIME IN PROBLEM =

34.389 SECONDS

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ALBEDO AND PLANETARY	DIRECT	INCIDENT FLUX	ES I	FOR STEP	NO 10000	TRUE ANOMALY =	0.	TIME =	0.
ALBEDO AND PLANTIANT	D1EU.	++++	IN '	THE SUN	++++				

NODE NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHADO ALBEDO	WED FLUX PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME (SECONDS)	ELEMEN PLAN	TS SURF	SHAD
1 2 3 4 11 12 13 14 5 15 21 22 23 24 25 26		0. 0. 0. 0. 0. 0. 0. 2.173E+01 2.200E+01 1.101E+02 4.024E+01 4.005E+01 3.915E+01 3.823E+01 6.592E+00	1.458E+01 7.423E+01 2.683E+01 2.645E+01 2.678E+01 2.643E+01	3.915E+01 4.005E+01 4.024E+01 0. 3.915E+01 3.826E+01 4.024E+01 0. 8.338E+01 1.101E+02 4.024E+01 4.005E+01 3.915E+01 3.823E+01 6.592E+00	2.678E+01 2.645E+01 2.683E+01 0. 2.678E+01 2.645E+01 2.683E+01 0. 5.586E+01 7.423E+01 2.683E+01 2.645E+01 2.645E+01 2.643E+01 4.570E+00	0. 0. 0. 0. 0. 0. 0. 0. 261 .264 1.000 1.000 1.000 1.000	0. 0. 0. 0. 0. 0. 0. .261 1.000 1.000 1.000 1.000	.001 1.318 2.748 2.985 4.764 6.555 8.335 8.577 15.364 22.487 36.485 39.272 41.098 43.907 45.698 46.565	66 63 61 66 63 61 133 112 61 63 66 52	999999991661809092	8 8 8 8 8 7 7 10 7 10 7

TOTAL ELAPSED TIME IN PROBLEM =

82.399 SECONDS

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 042100 FOR THE AQ SEGMENT

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DATE 05/11/77 TIME 08.28.09.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10000 ABSORBED Q COMPUTATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ABSORBED HEAT

NAME	VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10000	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10000	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10000	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10000

TOTAL TIME TO COMPUTE ABSORBED Q .12

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

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SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME									
		++++ BASIC CONTROL	PARAMETERS ++++											
	SHAD .250 .100 10000 90.000		SHAD, NOSH SOL, PLAN, ALL	SHAD 0.25 0.10 ALL 0 0.0	DINOSH DIACC DIACCS ICALFL NSPFF TRUEAN TIMEST									
		++++ BASIC DRBIT DATA ++++												
н-198	0. 0. 0. 6.08000E+05 6.08000E+05 0. 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0 0.0 0.0 0.0 0.0	ALAN APER OINC HP HA ECC SUNRA SUNDEC STRRA STRDEC									
	++++ PLANET-ORIENTED. ORIENTATION DATA ++++													
	300.000 270.000 0. 1 2 3 3.600E+02 9.000E+01 0.	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0 1 2 3 0.0 0.0 0.0	ROTX ROTY ROTZ SUNCL SUNCO PLCL PLCO									
		++++ SPIN DA	\TA ++++											
	0. 0. 0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CO CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS		0.0 0.0 0.0 0.0	CLOCK CONE RATE TIMSP									

DATE 05/11/77 TIME 08.28.11. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

+++++++ NSTEP NO =

++++ COMPUTED OR INPUT ORBIT DATA ++++

VALUE	VARIABLE DESCRIPT	ION	***	VALUE	VARIABLE DESCRIPTION	
60.000	SUN BETA ANGLE, DEGRE	EES		٥.	SUN CIGMA ANGLE, DEGREES	
0.	STAR BETAS ANGLE, DEC	BREES		٥.	STAR CIGMAS ANGLE, DEGREE	S
		++++ PLANET	EARTH	DATA ++4	.+	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300	PLANET ALBEDO	PALB	7	.50732E+01	PLANET DS EMISS POWER	WDS
2.09000E+07	PLANET RADIUS	PRAD	7	.50732E+01	PLANET SS EMISS POWER	WSS
1.46792E+00	ORBIT PERIOD	PERIOD				
4.17312E+08	PLANET GRAV CONSTANT	GRAV	4	.29000E+02	SOLAR CONSTANT AT PSD	SOL

MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

DATE 05/11/77 TIME 08.28.12. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

6.73312E-07

4.29000E+02

5.21643E-07

0.

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Ο.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

1.309

1.797

1.843

1.852

1.861

1.871

8

78

9

8

9

8

10

10

5

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PAGE

25

•	SOLAR	DIRECT INCIDENT	FLUX FOR ++++		JE ANOMALY = ++++	90.00000	TIME =	.36701
NODE Number	DIRECT . FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	0.	CALC	0.	9	0	
2	0.	5.25186E-07	0.	CALC	.048	ğ	4	
3	0.	4.29000E+02	0.	CALC	.164	81	ρ R	
4	0.	0.	ο.	CALC	.173	9	0	
11	0.	0.	0.	CALC	,181	9	0	
12	0.	0.	0.	CALC	.190	9	0	
13	0.	4.29000E+02	0.	CALC	.455	81	0	
14	0.	0.	0.	CALC	.465	9	0	
5	3.03349E+02	3.03349E+02	1.0000	CALC	854	81	7	
15	3.03349E+02	3.03349E+02	1.0000	CALC	1.247	81	7	

CALC

CALC

CALC

CALC

CALC

CALC

TOTAL ELAPSED TIME IN PROBLEM =

6.73312E-07

4.29000E+02

5.21643E-07

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0.

1.0000

1.0000

1.0000

0.

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85.069 SECONDS

21

23

24

25

26

26 PAGE

DATE 05/11/77 TIME 08.28.14.

MODEL=SAMPLE CONFIG=CASE1 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ALBEDO AND PLANETARY DIRECT	INCIDENT FLUX	KES FOR STEP NO	10001	TRUE ANOMALY =	90.00000	TIME =	ο.
ALBEDO MAD PENALTARI DIMES.	++++	IN THE SUN	++++				

NODE NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHA	DOWED FLUX PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME -	ELEMEN PLAN	ITS SURF	SHAD SURF
1 2 3 4 11 112 13 14 5 15 21 22 23 24 5 26 H-202		0. 0. 0. 0. 0. 0. 1.228E+00 1.233E+00 1.430E+00 2.061E+00 6.423E-01 0. 6.342E-01	1.458E+01 7.423E+01 2.683E+01 2.645E+01 2.678E+01 2.643E+01 4.570E+00	0. 0. 0. 0. 0. 0. 0. 0.	0. 0. 0. 0. 0. 0. 0. 0.	0. 0. 0. 0. 0. 0. 0. 0.	0. 0. 0. 0. 0. 0. 0. 0.	0. .081 .133 .142 .200 .252 .304 .316 .422 .531 .623 .684 .740 .797 .855 .902	66 63 61 166 63 61 133 133 112 61 66 65 52	888888888888888	
2		TOTAL ELA	PSED TIME IN PR	OBLEM =	86.033 S	ECONDS					

TOTAL ELAPSED TIME IN PROBLEM =

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 042100 FOR THE AQ SEGMENT

DATE 05/11/77 TIME 03.28.17.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10001 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

VARIABLE NAME	CURRENT VALUE	DEFAULT	ABSORBED HEAT DEFINITION	OPTIONS
IAQSDS	10001	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10001	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10001	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10001

TOTAL TIME TO COMPUTE ABSORBED Q .14

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

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PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK.

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		
	SHAD .250 .100	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR SHADOWING ACCURACY FACTOR FLUX COMPUTATION FLAG	SHAD, NOSH SOL, PLAN, ALL	SHAD 0.25 0.10 ALL	DINOSH DIACC DIACCS ICALFL NSPFF
	10000 180.000 0.	STEP NO. FOR PLANET-ORIENTED DATA TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0	TRUEAN TIMEST
		++++ BASIC UFBI	T DATA ++++		
H-204	0. 0. 0. 6.08000E+05 6.08000E+05 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0 0.0 0.0 0.0 0.0	ALAN APER OINC HP HA ECC SUNRA SUNDEC STRRA STRDEC
		++++ PLANET-ORIENTED.	DRIENTATION DATA ++++		
	300.000 270.000 0. 1 2 3 3.000E+02 1.500E+02 0.	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0 1 2 3 0.0 0.0 0.0	ROTX ROTY ROTZ SUNCL SUNCO PLCL PLCO
		++++ SPIN DA	TA ++++		
	0. 0. 0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CC CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS		0.0 0.0 0.0 0.0	CLOCK CONE RATE TIMSP

DATE 05/11/77 TIME 08.28.20.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

+++++++ NSTEP NO = 10002

++++ COMPUTED OR INPUT ORBIT DATA ++++

VALUE	VARIABLE DESCRIPTIO	N	***	VALUE	VARIABLE DESCRIPTION	
60.000 0.	SUN BETA ANGLE, DEGREE STAR BETAS ANGLE, DEGR			o. o.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREE	E S
		++++ PLANET	EART	H DATA ++-	++	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300 2. 09000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	WDS WSS
4.17312E+08	PLANET GRAV CONSTANT	GRAV	•	4.29000E+02	SOLAR CONSTANT AT PSD	SOL

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK.

DATE 05/11/77 TIME 08.28.20.

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DATE 05/11/77 TIME 08.28.20.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

	SOLAR	DIRECT INCIDENT			JE ANOMALY = +++	180.00000	TIME =	.73402
NODE Number	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	ο.	RTI	0.	0	0	
2	0.	0.	0.	RTI	.027	Ō	Ö	
3	0.	0.	0.	RTI	.031	Ō	Ö	
4	0.	0.	0.	RTI	.034	Ó	Ō	
11	0.	0.	0.	RTI	.039	Ō	Ō	

12 0. RTI .042 0 13 Ο. 0. ٥. RTI .046 0 14 0. Ο. RTI .050 ٥. 0. RTI .053 15 0. 0. RTI .064 0 21 0. 0. ٥. RTI .068 0 0 22 0. 0. ο. RTI .072 0 0 23 ٥. 0. RTI .075 0 24 0. Ο. RTI .080 0 25 0. 0. RTI .083 0 0 26 0. RTI ٥. .087

TOTAL ELAPSED TIME IN PROBLEM =

86.949 SECONDS

H-207

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 DIRECT IRRADIATION CALCULATION LINK.

DATE 05/11/77 TIME 08.28.20.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

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PAGE

ALBEDO AND PLANETARY DIRECT	INCIDENT FLUXES FOR STEP NO 10002	TRUE ANOMALY =	180.00000	TIME =	Ο.
	++++ IN THE SHADE ++++				

				UNCHAD	OWED FLUX	SHADOW	FACTORS	CP TIME -	-ELEMEN	TS	SHAD
NODE [,] NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	ALBEDO	PLANETARY	ALBEDO	PLAN	(SECONDS)	PLAN	SURF	SURF
				0.	0	ο.	0.	.001	0	0	0
1 .		0.	0.		0.	0.	0.	.030	0	0	0
2		0.	0.	0.	0.	o.	o.	.034	0	0	0
3		0.	0.	0.	0.	0.	o.	.038	0	0	0
4		0.	,0.	0.	0.	_	ö.	.042	0	0	0
11		0.	Ο.	0.	0.	0.	0.	.046	Ö	0	0
12		0.	0.	0.	0.	0.		.050	ō	0	0
12		0.	0.	0.	0.	0.	0.	.054	Ŏ	ō	0
10		0.	0.	0.	0.	0.	0.	.058	õ	Õ	ō
		0.	1.456E+01	0.	0.	0.	0.		0	Õ	ō
3		ŏ.	1.458E+01	0.	0.	0.	o.	.063	ŏ	ŏ	Ď
15		1	7.423E+01	0.	0.	Ο.	0.	.067	0	. 0	ŏ
21		0.	2.683E+01	Ö.	0.	0.	0.	.072	O	U .	0
22		0.			0	ο.	0.	.076	0	0	U
23		0.	2.645E+01	0.	٥.	ŏ.	o.	.081	0	0	0
24		0.	2.678E+01	0.	0.		2.7	.085	0	0	0
25		0.	2.643E+01	0.	0.	0.	0.	.089	ō	ō	0
井 26		0.	4.570E+00	0.	0.	0.	0.	.069	Ū	•	-

TOTAL ELAPSED TIME IN PROBLEM =

87.045 SECONDS

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 042100 FOR THE AQ SEGMENT

H-208

()

DATE 05/11/77 TIME 08.28.21.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE 33

MODEL=SAMPLE CONFIG=CASE1 STEP=10002 ABSORBED Q COMPUTATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ABSORBED HEAT

VARTABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10002	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10002	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10002	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10002

TOTAL TIME TO COMPUTE ABSORBED Q .14

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

PAGE

34

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE	CASE	3	-	FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN
--------	------	---	---	--------------------------------

				·	VADIABLE					
		DESCRIPTION	USER	DEFAULT	VARIABLE NAME					
	INPUT	DESCRIPTION	OPTIONS	VALUE	MA:::					
	VALUE									
		++++ BASIC CONTROL F	PARAMETERS ++++							
		TTTT DASIG CONTROL		0.14.0	DINOSH					
		SHADOWING OVERRIDE FLAG	SHAD, NOSH	SHAD 0.25	DIACC					
	SHAD	PLANETARY ACCURACY FACTOR		0.25	DIACCS					
	.250	SHADDWING ACCURACY FACTOR	one prast at t	ALL	ICALFL					
-	.100	ELLY COMPLITATION FLAG	SOL, PLAN, ALL	0	NSPFF					
	10000	STEP NO. FOR PLANET-ORIENTED DATA		0.0	TRUEAN					
	105.720	TRUE ANOMALY ANGLE, DEGREES		0.0	TIMEST					
	0.	INITIAL TIME (AT PERIAPSIS)								
		++++ BASIC ORBI	T DATA ++++							
		++++ BASIC DRBIT DATA ++++ 0. LONGITITUDE OF ASCENDING NODE, DEGREES 0.0 0. ARGUMENT OF PERIFOCUS, DEGREES 0.0								
		LONGITITUDE OF ASCENDING NODE, DEGREES			APER					
	•	ARGUMENT OF PERIFOCUS, DEGREES		0.0	DINC					
	0.	OPRIT INCLINATION. DEGREES		0.0	HP					
н-210	6.08000E+05	OPBIT ALTITUDE AT PERIAPSIS		0.0	HA					
2]	6.08000E+05	ORBIT ALTITUDE AT APOAPSIS		0.0	ECC					
6	0.	ORBIT ECCENTRICITY		0.0	SUNRA					
	0.	SUN RA ANGLE, DEGREES		0.0	SUNDEC					
	0.	SUN DEC ANGLE.DEGREES, REFERENCE STAR RA ANGLE, DEGREES		0.0	STRRA STRDEC					
	0.	REFERENCE STAR RA ANGLE, DEGREES		0.0	SIRDEC					
	0.	REFERENCE STAR DEC ANGEST DESIGN								
		++++ PLANET-ORIENTED. C		0.0	ROTX					
	300.000	ROTATION ABOUT VCS X-AXIS TO CCS		0.0	ROTY					
	270.000	BOTATION AROUT VCS Y-AXIS TO CCS		0.0	ROTZ					
	270.000	BOTATION AROUT VCS Z-AXIS IU CCS		1 2 3						
	1 2 3	POTATION ORDER IROTX, IROTY, IRUIZ		0.0	SUNCL					
	3.590E+02	SHIN LOOK ANGLE - CLOCK, DEGREES		0.0	SUNCO					
	1.036E+02	CIN LOUK VICIE - CONE, DEGREES		0.0	PLCL					
	0.	PLANET LOOK ANGLE - CLOCK, DGREES		0.0	PLCO					
	0.	PLANET LOOK ANGLE - CONE, DEGREES								
++++ SPIN DATA ++++										
				0.0	CLOCK					
	0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CCV	V=PUSITIVE)	0.0	CONE					
	0.	CONE ANGLE. DEGREES		0.0	RATE					
	0.	ROTATION RATE- CCW POSITIVE		0.0	TIMSP					
	0.	TIME SPIN BEGINS		•						
	V •									

DATE 05/11/77 TIME 08.28.24. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

+++++++ NSTEP NO = 10003

++++ COMPUTED OR INPUT ORBIT DATA ++++

	, , , ,	· COMPOILD	JK 2111 C	OUPTI PAIR 1		
VALUE	VARIABLE DESCRIPTION		***	VALUE	VARIABLE DESCRIPTION	
60.000 0.	SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGREE	:s		o. o.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREES	
		++++ PLANET	EAR1	TH DATA +++	+	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300 2.09000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	WDS WSS
4.17312E+08	PLANET GRAV CONSTANT	GRAV		4.29000E+02	SOLAR CONSTANT AT PSD	SOL

DATE 05/11/77 TIME 08.28.24.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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36

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/OREGEN

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DATE 05/11/77 TIME 08.28.25. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

37

MODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

	SOLAR	DIRECT INCIDENT	FLUX FOR	STEP NO *03 IN THE SUN	TRUE ANOMALY = ++++	105.71977	TIME =	.43111
NODE Number	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	N CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	0.	CALC	.001	9	0	
2	0.	6.94783E+00	0.	CALC	.051	9	4	
3	0.	4.16966E+02	0.	CALC	.189	81	8	
4	0.	0.	0.	CALC	.200	9	Ô	
11	0.	0.	0.	CALC	.210	9	Ŏ	
12	0.	0.	0.	CALC	.220	ğ	Ô	
13	0.	4.16966E+02	0.	CALC	.520	81	· 8	
14	0.	0.	0.	CALC	.529	9	Ô	
5	2.84679E+02	3.66016E+02	.7778	CALC	.876	81	7	
15	2.84679E+02	3.66016E+02	.7778	CALC	1.255	81	7	
21	1.00658E+02	1.00658E+02	1.0000	CALC	1.636	55	10	
22	4.16966E+02	4.16966E+02	1.0000	CALC	2.173	78	10	
23	6.94783E+00	6.94783E+00	1.0000	CALC	2.222	9	5	
24	0.	0.	0.	CALC	2.233	8	0	
25	0.	o.	o.	CALC	2,242	9	0	
26	0.	0.	0.	CALC	2.252	8	ŏ	

TOTAL ELAPSED TIME IN PROBLEM =

90.140 , SECONDS

PAGE

38

WODEL=SAMPLE CONFIG=CASE1 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

105.71977 TIME = Ο. ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 10003 TRUE ANOMALY = ++++ IN THE SUN

NODE'	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHADO	WED FLUX PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME - (SECONDS)	-ELEMEN PLAN	NTS SURF	SHAD SURF
NUMBER		ALULUU				•	ο.	.001	0	8	0
		0.	0.	0.	0.	0.	0.	.030	0	8	e
1		0.	o.	0.	0.	0.	٥.	.034	Ô	8	0
2			Ö.	0.	0.	0.	0.	.049	Ö	8	0
3		0.	ŏ.	0.	0.	0.	0.	.053	Ô	8	0
4		0.	0.	0.	0.	ο.	0.	.057	ō	. 8	0
11		0.	0.	0.	0.	0.	o.	.061	Ö	8	0
12		0.	0.	0.	0.	ο.	0.	.065	Õ	8	0
13		0.	0.	0.	0.	Ο.	0.	.070	Õ	8	G
14		0.	1.456E+01	0.	0.	0.	0.	.074	ŏ	8	0
5		0.	1.458E+01	0.	0.	ο.	0.		Õ	8	0
15		0.	7.423E+01	0.	0.	Ο.	0.	.078	0	Q	0
21		0.	2.683E+01	0.	0.	Ο.	٥.	.083	Õ	ě	Ô
22		0.		0.	0.	0.	0.	.088	0	8	e e
2 3		0.	2.645E+01	0.	0.	0	Ο.	.092	0	0	ò
24		0.	2.678E+01	0.	0.	ο.	0.	.096	0	8	Õ
25		0.	2.643E+01	0.	0.	ο.	Ο.	.101	Ü	0	•
26		0.	4.570E+00	v .	••						*

TOTAL ELAPSED TIME IN PROBLEM =

90.248 SECONDS

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 042100 FOR THE AQ SEGMENT

H-214

DATE 05/11/77 TIME 08.28.28. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10003

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ABSORBED Q COMPUTATION LINK.

ABSORBED HEAT

VARTABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10003	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10003	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10003	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10003

TOTAL TIME TO COMPUTE ABSORBED Q .14

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

DATE 05/11/77 TIME 08.28.31.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

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MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		
	SHAD .250	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS
	.100	SHADOWING ACCURACY FACTOR	SOL, PLAN, ALL	ALL O	ICALFL NSPFF
	10000 105.920 0.	STEP NO. FOR PLANET-DRIENTED DATA TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0	TRUEAN TIMEST
	0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES		0.0 0.0 0.0	ALAN APER DINC
#	0. 6.08000E+05	ORBIT INCLINATION, DEGREES ORBIT ALTITUDE AT PERIAPSIS		0.0 0.0	HP HA
216	6.08000E+05 0. 0.	ORBIT ALTITUDE AT APDAPSIS ORBIT ECCENTRICITY SUN RA ANGLE. DEGREES		0.0 0.0 0.0	ECC SUNRA SUNDEC
	D. D.	SUN DEC ANGLE. DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0	STRRA STRDEC
	300.000 270.000	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS	ORIENTATION DATA ++++	0.0 0.0 0.0 1 2 3	ROTX ROTY ROTZ
	1 2 3 3.590E+02 1.037E+02	ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0	SUNCL SUNCO PLCL
	0.	PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0	PLCO
		++++ SPIN D	ATA ++++		
	o. o.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE	CW=POSITIVE)	0.0 0.0 0.0	CLOCK CONE RATE TIMSP
	°.	TIME SPIN BEGINS		0.0	1 20101

DATE 05/11/77 TIME 08.28.31.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

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MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

+++++++ NSTEP NO = 10004

	++	++ COMPUTED	OR INPU	T DRBIT DATA -	++++	
VALUE	VARIABLE DESCRIPTION	I	***	VALUE	VARIABLE DESCRIPTION	
60.000 0.	SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGRE			o. o.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREES	
		++++ PLANET	EARTI	H DATA ++-	++	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300 2.09000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		7,50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	WDS WSS
4.17312E+08	PLANET GRAV CONSTANT	GRAV	•	4.29000E+02	SOLAR CONSTANT AT PSD	SOL

DATE 05/11/77 TIME 08.28.31.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

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PAGE

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DATE 05/11/77 TIME 08.28.31. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

.087

	SOLAR	DIRECT INCIDENT		STEP NO *04 T IN THE SHADE	RUE ANOMALY = ++++	105.91977	TIME =	.43193
NODE Number	DIRECT FLUX (QDS)	UNSHADOWED FLUX	SHADOW FACTOR	COMPUTATION	CP TIME (SECONDS)	SURFACE ELEMENTS	SHADOWING SURFACES	
1	0.	0.	0.	RTI	.001	0	0	
2	0.	0.	Ο.	RTI	.037	0	0	
3	0.	0.	0.	RTI	.040	0	0	
4	0.	.0.	ο.	RTI	.043	0	0	
11	0.	0.	0.	RTI	.047	0	0	
12	0.	0.	9.	RTI	.050	0	0	
13	0.	0.	0.	RTI	.055	0	0	
14	0.	0.	ο.	RTI	.059	0	0	
5	0.	0.	0.	RTI	.062	0	0	
15	0.	0.	٥.	RTI	.066	0	0	
21	0.	0.	0.	RTI	.069	0	0	
22	0.	0.	0.	RTI	.073	0	Ö	
23	0.	0.	0.	RTI	.078	0	0	
24	0.	o.	0.	RTI	.081	0	0	
25	0.	0.	0.	RTI	.084	Ö	0	

RTI

TOTAL ELAPSED TIME IN PROBLEM =

91.132 SECONDS

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THERMAL RADIATION ANALYSIS C"STEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

DATE 05/ 77 TIME 08.28.32.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 10004 TRUE ANOMALY = 105.91977 TIME = 0.

NODE' NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	UNSHADO ALBEDO	WED FLUX PLANETARY	SHADOW ALBEDO	FACTORS PLAN	CP TIME -	-ELEMENT PLAN	S SURF	SHAD SURF
				_	•	0.	0.	0.	0	0	0
1		0.	Ο.	0.	0.	Ö.	0.	.030	0	0	0
j		0.	0.	0.	0.		0.	.033	0	0	0
- a		0.	0.	0.	0.	0.	ö.	.037	0	0	0
4		0.	0.	0.	0.	0.	0.	.041	Ō	0	0
11		0.	0.	0.	0.	0.	0.	.046	0	0	0
12		0.	0.	0.	0.	0.	2 1	.050	0	0	0
12		0.	0.	0.	0.	0.	0.	.055	Ö	0	0
1.3		0.	0.	0.	0.	0.	0.	.058	Õ	ō	0
14		0.	1.456E+01	0.	0.	0.	0.	.063	Õ	ŏ	O
5		0.	1.458E+01	0.	0.	0.	0.		0	ŏ	Ō
15			7.423E+01	0.	0.	0.	0.	.068	0	Õ	ō
21		0.	2.683E+01	Ō.	0.	Ο.	0.	.072	0	0	0
22		0.	2.645E+01	0.	0.	0.	0.	.076	0	0	Ď
23 ´		0.		0.	0.	0	0.	.080	0	ŭ	0
24		0.	2.678E+01		0	0.	0.	.084	o	0	0
25		0.	2.643E+01	0.	0	ō.	0.	.090	0	0	U
26		0.	4.570E+00	0.	٠.	• •					

TOTAL ELAPSED TIME IN PROBLEM =

91.230 SECONDS

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH 10 042100 FOR THE AQ SEGMENT

H-220

DATE 05/11/77 TIME 08.28.33. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10004 ABSORBED Q COMPUTATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ABSORBED HEAT

VARTABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
IAQSDS	10004	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10004	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10004	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

ABSORBED Q STORED IN STEP 10004

TOTAL TIME TO COMPUTE ABSORBED Q .15

ADJUSTING FIELD LENGTH TO 051700 FOR THE QU SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 05/11/77 TIME 08.28.35.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

ABSORBED Q OUT OPTIONS DEFINITION VARIABLE CURRENT DEFAULT NAME VALUE N/A TIME ARRAY ID NUMBER FLUX TABLES START AT IQOTME + 1 (4HTAPE, 2HNO) 1 1 IQOTME PARAMETER TO OUTPUT TO BCD TAPE (3HPUN,2HNO) 2HNO NO QO1APE PUNCH/NO PUNCH PARAMETER FOR OUTPUT 2HN0 N/A PUN QOPNCH AREA MULTIPLYING FACTOR N/A 1.0000 1.0 QUAMPE FLUX MULTIPLYING FACTOR N/A 1.0000 1.0 QOEMPE TIME MULTIPLYING FACTOR (3HTAB, 2HAV, 4HBOTH) 1.0000 1.0 QOTMPF PARAMETER TO DETERMINE TYPE OF OUTPUT N/A BOTH NONE STEP NUMBER REFERENCE FOR CORRESPONDENCE DATA QOTYPE 0 0 IQDCOR (3HALL, ARRAY NAME) STEP NO. ARRAY DIRECTIVE NONE

H-222

IQUARY

ALL

DATE 05/11/77 TIME 08.28.36. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

ABSORBED HEAT FLUX TABLES PUNCHED

Q = INPUT * FMPF WHERE FMPF = 1.00000E+00 TIME = INPUT * TMPF WHERE TMPF = 1.00000E+00 AREA IS ON SUBROUTINE CALL CARDS

MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

1\$ TIME ARRAY				P 040E-04
1.969E-08, 3.670	E-01, 4.311E-01	•	4.319E-01,	7.3402-01
END\$				
2\$ HEAT FLUX				_
2.336E+00, 0.	, 0.	٠	0.	0.
END\$				
3\$ HEAT FLUX			_	
2.664E+01, 0.	, 0.	٠	0.	0.
END\$				
4\$ HEAT FLUX	ARRAY		_	•
1.467E+00, 0.	, 0.	•	0.	0.
END\$				
5\$ HEAT FLUX			_	•
2.244E+01, 0.	, 0.	٠	0.	0.
END\$				
6\$ HEAT FLUX	ARRAY		_	•
o. , o.	. 0.	٠	0.	0.
END\$				
7\$ HEAT FLUX	ARRAY			
0. , 0.	, 0.	•	0.	0.
END\$				

DATE 05/11/77 TIME 08.28.37. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

DA11MC SUBROUTINE CALL CARDS

AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

GE 50

WODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED O OUTPUT COMPUTATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

DA11MC SUBROUTINE CALL CARDS

	AREA =	INPUT	(UNITS)	* AMPF	WHERE	AMPF =	1.00000E+00
DA11MC(1,A	2, 4.0	6040000	P.00+3	1)\$	
	1.46792174E+00,TIMEM,A		3, 2.0				
DA11MC(1.46792174E+00.TIMEM.A	1,A	4, 4.0				
	1.46792174E+00,TIMEM.A	1 , A	5, 4.0				
DA11MC(1.46792174E+00,TIMEM,A	1,A	6, 2.0				
	1.46792174E+00.TIMEM,A	1,A	7, 4.0	6040000	E+00,Q	5)\$	

DATE 05/11/77 TIME 08.28.37.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

AVERAGE ORBITAL HEATING FLUX AND AREA CARDS PUNCHED

VALUES ARE FLUX = INPUT (UNITS) * FMPF WHERE FMPF = 1.00000E+00
VALUES ARE AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

MODEL=SAMPLE CONFIG=CASE1 STEP=10006 ABSORBED Q OUTPUT COMPUTATION LINK. SAMPLE CASE 3 - FFCAL/CMCAL/GBCAL/RCCAL/ORBGEN

AVERAGE ORBITAL HEATING FLUX AND AREA CARDS PUNCHED

VALUES ARE FLUX = INPUT (UNITS) * FMPF WHERE FMPF = 1.00000E+00 VALUES ARE AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

TOTAL TIME TO COMPUTE ABSORBED Q OUT .56

ADJUSTING FIELD LENGTH TO 041700 FOR THE OD SEGMENT

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NASA/MARTIN MARIETTA THERMAL RADJATION ANALYSIS SYSTEM CDCo500/SCOPE 3.4

SSSSSSSSS

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SSS

TTTTTTTTTTT TTTTTTTTTTTT TT TTT TT TTT TTT TTT TRASYS ΪI TTT RRRRRRRRR TIT RRRRRRRRRR TTTTTTT RRR RRR RRR RRR RRRRRRRRRR RRR RRR RRR RRR AAAAAAA RRR RRR AAAAAAAA RRR RRRR AAAAAAAAA AAA AAA AAA AAA AAAAAAAAA AAA AAA AAA AAA SSSSSSSSS AAA AAA SSSSSSSSSS AAAAA AAAAA SSS SS SSS SSSSSSSSS SSS SSS YYYY YYYY SSSSSSSSSS YYY YYY SSSSSSSSS YYY YYY YYY YYY YYYYY YYY YYY YYY YYYYYY

PRE-PROCESSOR EXECUTION

VERSION.MODIFICATION ... SC2E2
MODIFICATION DATE 05/09/77

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION
DATE 05/10/77 TIME 16.49.37.
MODEL = N/A
OPTION AND TITLE DATA BLOCKS
                 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL
CARD ORGIN
                 HEADER OPTIONS DATA
INPUT
                 TITLE SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL
INPUT
                 C----FORM TWO ENCLOSURES INSIDE THE BOX BY THE USE OF "MESS" NODES.
INPUT
                 C----CLOSE THE BOX LID AND CALCULATE FORM FACTORS, GRAY BODY FACTORS.
INPUT
                 C----AND RADK'S FOR EACH OF THE ENCLOSURES UTILIZING AN "ERN" NODE
INPUT
INPUT
                 C----IN ENCLOSURE 2.
INPUT
INPUT
                                    = SAMPLE
                        MODEL
INPUT
                                    = RSTSAM
                        RSI
INPUT
                                    = RSTSAM4
                         RSO
INPUT
```

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PAGE

DATE 05/10/77 TIME 16.49.38.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

MODEL = SAMPLE TRASYS INFORMATION TO USER

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

OPTIONS DATA -INFC- OPTIONS ARE ...

INFO = BUILD BUILD EXECUTION CARD

INFO = INFO HOW TO USE TRASYS INFO FILE

INFO = ITRCPP PREPROCESSOR TRACE FLAGS

INFO = RKCAL INFO. ON DELETION OF THE RKCAL LINK

INFO = STEP INFO. ON USING STEP CARDS

INFO = CCARDS INFO. ON TRASYS CONTROL CARDS

END OF TRASYS INFORMATION FILE

DATE 05/10/77 TIME 16.49.39.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

MODEL = SAMPLE MODEL HISTORY SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

MODEL NAME SAMPLE

MODEL TITLE SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

AA RGEX153 05/04/77 11.07.24 RSTSAM AB RFRFIRF 05/10/77 16.49.38 RSTSAM RSTSAM4

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SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

MODEL = SAMPLE SOURCE DATA EDIT DIRECTIVES

CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2	345678 8 EDIT NO. OLD E	DIT NO.	LABE
	HEADER EDIT DATA			
****	*D,1			
D	HEADER SURFACE DATA	orp-	1	AA
Ī	HEADER ARRAY DATA	1		AB
Ī	IPRIM1 = 101	2		AB
I	ISEC1 = 111	3		AB
I	IPRIM2 = 111	4		AB
I	ISEC2 = 101	5		AB
I	HEADER SURFACE DATA	6		AB
****	*I,56			
1	BCS LIDINL	62		AB
***	*I,121			
I	BCS LIDINL, 0., 0., 1., 0., -45., 0.	128		ΑB
***	*I,171			
I	С	179		AB
I	CSPECIFY CALCULATION OF FORM FACTORS FOR ENCLOSURE 1 BY	180		AB
I	CTHE USE OF UNIT SPHERE LOGIC (NO SHADOWING)	181		AB
I	c	182		AB
I	FIG ENCL1	183		AB
I	UNIT	184		AB
Ĭ	c c	185		AB
Ĩ	CSPECIFY CALCULATION OF FORM FACTORS FOR ENCLOSURE 2 BY	186		AB
Ī	CTHE USE OF UNIT SPHERE LOGIC (NO SHADOWING)	187		AB
Ī	C	188		AB
İ	FIG ENCL2	189		AB
Ī	UNIT	190		AB
****	*D,195,222	190		AB
D	CBUILD THE CASE 1 CONFIGURATION	OLD-	195	AA
D D	CONTROL OF CASE I CONFIGURATION			
D	CULTUR CASEA BOYING SOYING LIDING BOYOUT LIDOUT	OLD-	196	AA
D	SUILD CASE1, BOXINR, GOXINL, LIDINR, BOXOUT, LIDOUT C	orp-	197	AA
D		orp-	198	AA
_	CPLOT THE CASE 1 CONFIGURATION INDICATING THE ACTIVE	orb-	199	AA
0	CSIDES OF THE NODES.	orb-	200	AA
D	C	OLD-	201	AA
D	CALL NDATAS(0,0,0,YES,0)	OrD-	202	AA
D	r Natural Marian	oro-	203	AA
D	C	OLD-	204	AA
D	CCALCULATE SHADOW FACTOR TABLES FOR SUBSEQUENT USE IN	OLD-	205	.AA
D	CSAMPLE CASE 2 IN THE CALCULATION OF DIRECT FLUXES.	OLD-	206	AA
D	C	OLD-	207	AA
D	L SFCAL	OLD-	208	AA
D	c	OLD-	209	AA
D	CCALCULATE THE FORM FACTOR MATRIX.	OLD-	210	AA
D	C	OLD-	211	AA
D	L FFCAL	OLD-	212	AA
D	C	DLD-	213	AA
٥	CCALCULATE THE GRAY BODY MATRIX.	OLD-	214	AA
D	C	OLD-	215	AA
D	CALL GBDATA(BOTH,O,FF)	OLD-	216	AA
D	L GBCAL	QLD-	217	AA
D	CALL RKDATA(0.0.0,0,5PACE,999,0,0,0,0)	OLD-	218	AA

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SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

MODEL = SAMPLE SOURCE DATA EDIT DIRECTIVES	SAMPLE CASE 4 - FFCAL/GBCAL/ACCAL
	5 0045670 6 0245670 7 7

D ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 23	145678 8 EDIT NO. 010 1	D1. 110.	L
		OLD-	219	
D	C CONTRACTOR CONDUCTORS	OLD-	220	
D	CCALCULATE AND PUNCH RADIATION CONDUCTORS.	OrD-	221	
D	C	GLD-	222	
D	L RKCAL	214		
	C	215		
Ī	CCLOSE BOX LID	216		
	C	217		
	CALL CHGBLK(LIDINR, 0., 0., 1., 1, 2, 3, 0., 0., 0.)	218		
	CALL CHGBLK(LIDINL, 0., 0., 1., 1, 2, 3, 0., 0., 0.)	219		
	· c	220		
	CBUILD ENCL1 CONFIGURATION	221		
<u>.</u> T	C	222		
1	BUILD ENCL1, BOXINR, LIDINR, MESSR	223		
•	C '	224		
•	CCALCULATE FORM FACTORS FOR ENCLOSURE 1	225		
	c c	226		
	CALL RSTOFF	227		
<u>.</u> T	L FFCAL	228		
l T		229		
-	CCALCULATE GRAY BODY FACTORS FOR ENCLOSURE 1	230		
I	C	231		
<u>I</u>	CALL GBDATA(IR,O,FF)			
I		232		
I	L G3CAL	233		
I	C CCALCULATE RADK'S FOR ENCLOSURE 1	234		
I		235		
I	CALL RCDATA(0,0,0,0,0,0,0,0,0,0,0,0,1PRIM1, ISEC1)	236		
I		237		
I	L RCCAL	238		
I	C CONTRACTOR OF THE CONTRACTOR	239		
I	CBUILD ENCL2 CONFIGURATION	240		
I	C MESSEL	241		
I	BUILD ENCL2, BOXINL, LIDINL, MESSL	242		
I	C STATE OF THE PROPERTY OF THE	243		
I	CCALCULATE FORM FACTORS FOR ENCLOSURE 2	244		
I	С	245		
Ī	ι FFCAL	246		
Ī	C SUBSTITUTE TO THE COURT OF	247		
Ī	CCALCULATE GRAY BODY FACTORS FOR ENCLOSURE 2	248		
Ī	C	249		
ī	CALL GBDATA(IR,0,FF)	250		
- T	L GBCAL	251		
T		25 2		
÷	C CCALCULATE RADK'S FOR ENCLOSURE 2 UTILIZING AN "ERN" NODE	253		
1 T		254		
<u>1</u>	C CALL RCDATA(0,0,0,0,0,0,0,0,0,1.E-99,555,1PRIM2,1SEC2)	255		
I I	L RCCAL	200		

DATE 05/10/77	TIME 16.49.41.	THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE V	ERSION PAGE 7	
MODEL = SAMPLE ARRAY DATA INPUT	ВLОСК	SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL		
CARD ORGIN	12345678 1 2345678	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678	8 EDIT NO. OLD EDIT NO.	LABEL
INPUT INPUT INPUT INPUT INPUT	HEADER ARRAY DATA IPRIM1 ISEC1 IPRIM2 ISEC2	= 101 = 111 = 111 = 101	1 2 3 4	AB AB AB AB

DATE 05/10/77 TIME 16.49.42.

DEL - SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

				SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL				
	MODEL = SAMPLE			SAMPLE CASE 4				
	SURFACE DATA INPUT	BLOCK					_	
				2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT	NO.	OLD EDIT	NO.	LABEL
	CARD ORGIN	1234567	78 1 2345678	2 2345676 3 2545676 4 2545676 5 16 16 16 16				
					6			AB
	INPUT	HEADER	SURFACE DATA	· ·	7	OLD-	2	AA
	RSI	C ·		THE TO HERE IN CAMPLE CASES & THEOLIGH 5	8	OLD-	3	AA
	RSI	C	THIS SURFACE	DATA BLOCK IS USED IN SAMPLE CASES 1 THROUGH 5	9	OLD-	4	AA
	RSI	CI	WITH VARIOUS	PODITIONS OF IT BEING ALLIVATED FOR THE DIFFERENCE		OLD-	5	AA
	RSI	C				OLD-	6	AA
	RSI	Ċ				OLD-	7.	AA
		BCS	BOXINR		-	OLD-	8	AA
	RSI	S	SURFN		_	OLD-	9	AA
	RSI	3	TYPE	STAT			10	AA
	RSI		ACTIVE	DOT TOM		OFD-		AA
	RSI		PROP	- 0.0.0.9		OLD-	11	
	RSI			_ + 0 0 0 1 0	17	OLD-	12	AA
	RSI		P1	• • • • • •	18	OLD-	13	AA
	RSI		P2	4 0 4 0 0 0		OLD-	14	AA
	RSI		P3	= 1.0, 1.0, 0.0	20	OLD-	15	AA
	RSI		COM	* * INNER RIGH, FRONT *	21	OLD-	16	AΑ
	RSI	S	SURFN	= 2	22	OLD-	17	AA
	R\$1		TYPE	= RECT	23	OLD-	18	AA
	RSI		ACTIVE	= BOTTOM	24	OLD-	19	AA
_	RSI		PROP	= 0.9,0.9	25	OLD-	20	AA
Ħ	RSI		P1	= 1.0, 1.0, 1.0		-	21	AA
.23			P2	= 1.0, 1.0, 0.0	27	OLD-	22	AA
	RSI		₽3	= 0.0, 1.0, 0.0	28	OLD-	23	AA
∞	RSI		COM	= * INNER RIGHT SIDE *		OLD-	24	AA
	RSI	_	SURFN	= 3	29		25	AA
	RSI	\$		= RECT	30	OLD-		AA
	RSI		TYPE	= TOP	31	OLD-	26	
	RSI		ACTIVE		32	OLD-	27	AA
	RSI		PROP	= 0.9,0.9	33	OLD-	28	AA
	RSI		P1	= 0.0, 0.0, 1.0	34	OFD-	29	AA
	RSI		P2	= 0.0, 0.0, 0.0	35	OLD-	30	AA
	RSI		P3	= 0.0, 1.0, 0.0	36	OLD-	31	AA
	RSI		COM	= * INNER RIGHT BACK *	37	OLD-	32	AA
	RSI	S	SURFN	= 4	38	OLD-	33	AA
	RSI		TYPE	# RECT	39	OLD-	34	AA
	RSI		ACTIVE	= TOP	40	OLD-	35	AA
	RSI		2802	= 0.9.0.9	41	OLD-	36	AA
	RSI		P1	= 1.0, 1.0, 0.0	42	GLD-	37	AA
			COM	= * INNER RIGHT BOTTOM *	43	DLD-	38	AA
	RSI	BCS	BOXINI IMGE	CS=BOXINR, NINC=10, IREFSF=1000	44	OLD-	39	AA
	RSI	_			45	0.D-	40	AA
	RSI	<u>-</u>	THE EMPERATE	G CARD IMAGES BCS BOXING IN REFERENCE PLANE 1000	_		41	AA
	FSI				46	0LD-	42	AA
	RSI	C	-IU CREATE DO	TO FACILITATE THE INPUT OF SAMPLE CASE 4 TO SHOW	47	OLD-	43	ÄÄ
	RSI	C	-THIS MANNER	MESS" AND "ERN" NODES.	48	OLD-		ÄÄ
	RSI		-THE USE OF	MESS" AND ERN HODES.	49	OLD-	44	AA
	RSI	С		ACE 1) BCS (BO), GENERATING SURFACE (11) BCS (BO)				
			IMAGING SUR	ACE 1) BOS (BO)				
			IMAGING SUR	ACE 2) BCS (BO)				
			IMAGING SUR	ACE 3) BCS (BU), GENERALING SURFACE (14) BCS (BO)				
			IMAGING SUR	FACE 4) BCS (BU), GENERATING SURFACE (11, 500)	50	OLD	45	AA
	RSI	R	REFNO	= 1000	51		46	AA
	RSI	.,	P1	= 1.0, 0.0, 1.0	52	_	47	AΑ
	RSI		P2	= 1.0, 0.0, 0.0				
	KOI							

DATE 05/10/77 TIME 16.49.43. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

MODEL = SAMPLE SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL SURFACE DATA INPUT BLOCK

	SURFACE DATA INFO	SCOOK						
	CARD ORGIN	123456	78 1 2 345678	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT	NO.	OLD EDIT	NO.	LABEL
	RSI		Р3	= 0.0, 0.0, 0.0	53	OLD-	48	AA
	RSI		COM	= * IMAGING PLANE *	54	OLD-	49	AA
	RSI	BCS	LIDINR		55	OLD-	50	AA
	RSI	S	SURFN	= 5	56	OLD-	51	AA
	RSI		TYPE	= RECT	57	OLD-	52	AA
	RSI		ACTIVE	= BOTTOM	58	OLD-	53	AA
	RSI		PROP	= 0.9.0.9	59	OLD-	54	AA
	RSI		P1	·	60	OLD-	55	AA
	RSI		COM	= * INNER RIGHT LID *		OLD-	56	AA
	INPUT	BCS	LIDINL		62		••.	AB
	RSI	S	SURFN	= 15	63	OLD-	57	AA
	RSI	ŭ	IMAGSF	= 5 = 5	64	OLD-	58	AA
	RSI		IREFSF	= 1000		OLD-	59	AA
	RSI		COM	= * INNER LEFT LID *		OLD-	50	AA
	RSI	BCS	BOXOUT	- Times the table	67	OLD-	61	AA
	RSI	S	SURFN	= 21	68	OLD-	62	AA
	RSI	5	TYPE	= BOX5	69	OLD-	63	AA
	RSI		ACTIVE	= OUT	70	OFD-	64	AA
	RSI		SHADE	= NO	71	OLD-	65	AA
_	RSI		PROP	= 0.2,0.9	72	OLD-	66	
H-	RSI		P1	= 1.01,-1.01, 1.01			67	AA AA
23	RSI					OLD-	-	
39	RSI		P2 P3	= 1.01, 1.01, 1.01	74	01D-	68	AA
_	RSI		P4	=-0.01, 1.01, 1.01	75	OLD-	69	AA
	RSI			=-0.01, 1.01,-0.01		OLD-	70	AA
	RSI	ncc	COM	= * OUTER SURFACES *	77	OLD-	71	AA
		BCS	LIDOUT		78	OLD-	72	AA
	RSI	S	SURFN	= 26	79	OLD-	73	AA
	RSI		TYPE	= RECT	80	OLD-	74	AA
	RSI		ACTIVE	= TOP	81	orp-	75	AA
	RSI		SHADE	= NO	82	OLD-	76	AA
	RSI		PROP	= 0.2,0.9	83	OLD-	7 7	AA
	RSI		P1	= 1.01,-1.01, 0.01	84	OLD-	78	AA
	RSI		P2	= 1.01, 1.01, 0.01	85	OLD-	79	AA
	RSI		P3	=-0.01, 1.01, 0.01	86	OLD-	80	AA
	RSI	_	COM	= * OUTER SURFACE OF LID *	87	OLD-	81	AA
	RSI	C	THE NEVT THE	DOCAG (MECCO AND MECCA) AND ANTIVATED IN CAMPLE	88	DLD-	82	AA
	RSI			BCS'S (MESSR AND MESSL) ARE ACTIVATED IN SAMPLE	89	OLD-	83	AA
	RSI		CASE 4 ONLY.		90	OLD-	84	AA
	RSI	C	MECCO		91	OLD-	85	AA
	RSI	BCS	MESSR		92	OLD-	86	AA
	RSI	S	SURFN	= 101	93	OLD-	87	AA
	RSI		TYPE	= RECT	94	OLD-	38	AA
	RSI		ACTIVE	= TOP	95	OLD-	89	AA
	RSI		PROP	= 1.0,1.0	96	OLD-	90	AA
	RSI		P1	= 1.0, 0.0, 1.0	97	OFD-	91	AA
	RSI		P2	= 1.0, 0.0, 0.0	98	OLD-	92	AA
	RSI		P3	= 0.0, 0.0, 0.0	99	OLD-	93	AA
	RSI	000	COM		100	OLD-	94	AA
	RSI	BCS	MESSL		101	OLD-	95	AA
	RSI	S	SURFN			OLD-	.96	AA
	RSI		TYPE	= RECT	103	OLD-	97	AA

10

115

116

117

AA

AA

DLD-

122 OLD-

123 OLD-

121

H-240

RSI

RSI

RSI

RSI

P2

P3

COM

= 1.0, 1.0, 0.0

= 0.0, 1.0, 0.0

= * SPECULAR LID *

DATE 05/10/77	TIME 16.49.47. TH	HERMAL RADIATION ANALYSI	S SYSTEM (TRASYS)	CDC6500/SCOPE	VERSION	PAGE	11	
MODEL = SAMPLE BCS DATA INPUT	ВLОСК	SAMPLE CASE 4	- FFCAL/GBCAL/	RCCAL	•	,		
CARD ORGIN	12345678 1 2345678 2 2	2345678 3 2345678 4 2345	6678 5 2345678 6 2	345678 7 2345678	B 8 EDIT NO.	OLD EDIT	NO.	LABEL
RSI RSI RSI RSI INPUT RSI RSI RSI RSI	HEADER BCS DATA BCS BOXINR BCS BOXINL BCS LIDINR .001 BCS LIDINL,001 BCS BOXOUT BCS LIDOUT .001 BCS MESSR BCS MESSL	.0.,-45.,0.			124 125 126 127 128 129 130	OLD- OLD- OLD- OLD- OLD-	118 119 120 121 122 123	AA AA AA AB AA AA
RSI		.,0.,-45.,0.			132 133	OFD-	125 126	AA AA

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

MODEL = SAMPLE		
FORM FACTOR DATA	TUPUI	BLOCK

FUR	W FACTOR DATA I	NEOT BESON	O EDIT NO	OLD FDT	T NO.	LABEL
CAR	D ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678	6 EDIT NO.	0.0		
CAN			134	OLD-	127	AA
RSI		HEADER FORM FACTOR DATA	135	OLD-	128	AA
RSI		C FACTORS AND FOLLIVALENT FORM FACTORS FOR	136	OLD-	129	AA
RSI		C CENTER KNOWN ZERO FORM FACTORS AND EQUIVALENT FORM FACTORS FOR	137	OLD-	130	AA
RSI		CCASE1.	138	OLD-	131	AA
RSI		C		OLD-	132	AA
RSï		FIG CASE1 NODEA 1,2,3,4,11,12,13,14,5,15,21,22,23,24,25,26,END	140	OLD-	133	AA
RSI			141	OLD-	134	AA
RSI		BOTH 21.ZERO		OFD-	135	AA
RSI		22.ZERO	143	OLD-	136	AA AA
RSI		23.ZERO	144	OLD-	137	AA
RSI		24.ZERO 25.ZERO	145	OFD-	138 139	ÄÄ
RSI		26.ZERO	146	OLD-	140	AA
RSI		1,1,0.		OLD-	141	AA
RSI		11,12,1,2	148 149	OLD-	142	AA
RSI		11,13,1,3	150	OLD-	143	AA
RSI		11,14,1,4	151	DLD-	144	AA
RSI		11,15,1,5	152	OLD-	145	AA
RSI		1.11.0.	153	OLD-	146	AA
RSI		11,2,1,12	154	OLD-	147	AA
H RSI		11,3,1,13	155	OLD-	148	AA
12 RS		11.4.1.14	156	OLD-	149	AA
RS1 RS1		11,5,1,15	157	OLD-	150	AA
RS:		2,2,0.	158	OLD-	151	AA
RS		2,3,1,2	159	OLD-	152	AA
RS		2,4.1,4	160	DLD-	153	AA
RS		12.13,2.3	161	OFD-	154	AA
RS		12.14,2,4	162	OLD-	155	AA
RS		12,15,2,5	163	OLD-	156	AA
RS		12,3,2,13	164	orp-	157	AA
RS		12,4,2,14	165	OLD-	158	AA
RS		12.5.2,15	166	OFD-	159	AA
RS	I	3,3,0.	167	OLD-	160	AA
RS	I	3,4,1,4	168	OFD-	161	AA
RS	I	13.14.3.4	169	OLD-	162	AA
RS	I	13,15,3.5	170	OLD-	163	AA AA
RS		3,13,0.	171	OLD-	164	AA
RS		13,4,3,14	172		165	AA
RS		13.5.3.15	173	OFD-	166	AA
RS		4,4,0	174	OLD-	167	AA
RS		14.15.4.5	175	OLD-	168 169	AA
RS		4,14,0. 14,5,4,15	176	OLD-	170	AA
RS		5,5.0.	177	OLD-	171	AA
RS		5,15,0.	178	OLD-	171	AB
RS			179 180			AB
	PUT	CHARGE CIEV CALCILIATION OF FORM FACTORS FOR ENCLUSURE 1 BY	180	•		AB
	PUT	CTHE USE OF UNIT SPHERE LOGIC (NO SHADOWING)	182			AB
	PUT	C	183			AB
	PUT	FIG ENCL1	184			AB
	PUT	UNIT	.04			
11/	PUT					

DATE 05/10/77	TIME 16.49.54.	THERMAL RADIATION	ANALYSIS SYSTEM (T	RASYS) CDC6500/SCOPE	VERSION PAGE	13
MODEL = SAMPLE FORM FACTOR DATA	INPUT BLOCK	SAMPLE	E CASE 4 - FFCAL/	GBCAL/RCCAL		
CARD ORGIN	12345678 1 2345678	2 2345678 3 2345678	8 4 2345678 5 23456	78 6 2345678 7 2345678	B B EDIT NO. OLD EDI	T NO. LABEL
INPUT INPUT INPUT INPUT INPUT INPUT		ULATION OF FORM FACT	TORS FOR ENCLOSURE O SHADOWING)	2 BY .	185 186 187 188 189	AB AB AB AB AB

= 1.11,22

= 3,13,24

= 4,14,21

= 5,15,26

= 12.23

= 2.25

2

3

5

12

PAGE 14

207 OLD-

208 OLD-

209 OLD-

210 OLD-

211 OLD-

AA

189 AA

190 AA

191 AA

192 AA

188

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RSI

RSI

RSI

RSI

RSI

RSI

DATE 05/10/77 TIME 16.49.55. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE

CARD ORGIN

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

OPERATION DATA INPUT BLOCK (PASS 1)

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

RSI

HEADER OPERATIONS DATA

212 OLD-193 AA

PAGE

+++++ OPERATIONS DATA BLOCK (PASS 1) COMPLETE +++++

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

MODEL = S					
OPERATION	DATA	INPUT	BLOCK	(PASS 2)	

OPERATION DATA	INPUT BLOCK (PASS 2)		
CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 23		
		213 OLD-	194 AA AB
RSI	c contract the contract of the	214	
INPUT	C	215	AB
INPUT	CCLOSE BOX LID	216	AB
INPUT	C	217	AB
INPUT	CALL CHGBLK(LIDINR.CO11.2.3.0O)	218	AB
INPUT	CALL CHGBLK(LIDINL,0.,0.,1.,1,2,3,0.,0.,0.)	219	AB
INPUT	c	220	AB
INPUT	CBUILD ENCL1 CONFIGURATION	221	AB
			7.5
INPUT	STEP -1	-0	АВ
PROG	A COCO	222	Ab
INPUT	BUILD ENCLI, BOXING, LIDING, MESSK	-0	
PROG	CALL BUILDC (BOXINR, 6HENCL1)	-0	
PROG	CALL ADD (LIDINR)	-0	
PROG	CALL ADD (MESSR)	223	AB
INPUT	C	224	AB
INPUT	CCALCULATE FORM FACTORS FOR ENCLOSURE 1	225	AB
INPUT	c	226	AB
INPUT	CALL RSTOFF	227	AB
=	L FFCAL		AB
INPUT	-	228	AB
INPUT	C CCALCULATE GRAY BODY FACTORS FOR ENCLOSURE 1	229	
井 INPUT		230	AB
2 INPUT	C	231	AB
F INPUT	CALL GBDATA(IR.O.FF)	232	AB
O INPUT	L GBCAL	233	AB
INPUT	C	234	AB
INPUT	CCALCULATE RADK'S FOR ENCLOSURE 1	235	AB
INPUT		236	AB
INPUT	CALL RCDATA(0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0)		AB
		237	AS
INPUT		238	AB
INPUT	C CONTRACTOR CONFIGURATION	239	
INPUT	CBUILD ENCL2 CONFIGURATION	240	AB
INPUT	C ·	-0	
PROG	STEP -2	241	AB
INPUT	BUILD ENCL2, BOXINL, LIDINL, MESSL	-0	
PROG	CALL BUILDC (BOXINL, 6HENCL2)	-0	
PROG	CALL ADD (LIDINL)	-0	
PROG	CALL ADD (MESSL)	242	AB
	r		AB
INPUT	CCALCULATE FORM FACTORS FOR ENCLOSURE 2	243	AB
INPUT		244	
INPUT	C	245	AB
INPUT	L FFCAL	246	AB
INPUT	C TOTAL TARTORS FOR ENGLOSINE 2	247	AB
INPUT	CCALCULATE GRAY BODY FACTORS FOR ENCLOSURE 2	248	AB
INPUT	С	249	AB
INPUT	CALL GBDATA(IR.O.FF)	250	AB
INPUT	L GBCAL	251	AB
			AB
INPUT	CCALCULATE RADK'S FOR ENCLOSURE 2 UTILIZING AN "ERN" NODE	252	AB
INPUT		253	
INPUT	C CALL RCDATA(0,0,0,0,0,0,0,0,0,1.E-99,555,1PRIM2,1SEC2)	254	AB
INPUT		255	AB
INPUT	L RCCAL	256	AA
RSI	END OF DATA		

22	
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4	
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DATE 05/10/77 TIME 16.49.59.
                               THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION
                                                                                           PAGE
                                                                                                  17
MODEL = SAMPLE
                                          SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL
PROCESSOR CORE ALLOCATION
THE FOLLOWING IS THE PROCESSOR CORE ALLOCATION FOR THOSE SEGMENTS WHICH WILL BE LOADED IN THIS EXECUTION (APPROX.) ...
                                          OCTAL/DECIMAL
TRASYS (0) SEGMENT ..... 033517/ 14159
OPERATIONS DATA (NOT KNOWN AT THIS TIME)..... 075000/ 31232
INITALIZATION SEGMENT ...... 037600/ 16256
FORM FACTOR SEGMENT ..... 100200/ 32896
RADATION CONDUCTOR SEGMENT ..... 050000/ 20480
GRAY BODY DYNAMIC COMMON ..... 004600/ 2432
RADIATION CONDUCTOR DYNAMIC COMMON ..... 000574/ 380
GRAY BODY MINIMUM - MAXIMUM CORE ...... 050410/ 21768 - 052410/ 21768
RADIATION CONDUCTOR MINIMUM - MAXIMUM CORE .... 047523/ 20307 - 047767/ 20471
          1++ THE FFPROG SEGMENT APPEARS TO BE TOO LONG FOR AMOUNT OF CORE (075000B) AVAILABLE
++CAUTION
MINIMUM CORE NEEDED FOR PROCESSOR EXECUTION .... 100200/ 32896
MAXIMUM CORE NEEDED FOR PROCESSOR EXECUTION .... 100200/ 32896
```

AMOUNT OF CORE THAT WILL BE USED BY PROCESSSOR . 100200/ 32896

DATE 05/10/77 TIME 16.49.59. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

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MODEL = SAMPLE WRAP UP OF THE PRE-PROCESSOR SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

CAUTION MESSAGE(S) OCCUR FOLLOWING THE FIRST 100 OR LESS EDIT SEQUENCE NUMBER(S) LISTED BELOW ...

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H
1
2
4

DATE 05/10/77 TIME 16.49.59. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION PAGE MODEL = SAMPLE SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL WRAP UP OF THE PRE-PROCESSOR PRE-PROCESSOR ACCOUNTING INFORMATION CP-SEC PP-SEC DYM-STORAGE SOURCE EDITING859 3 515 DOCUMENTATION DATA PRE-PROCESSING ο. 0 0 QUANTITIES DATA PRE-PROCESSING012 0 266 ARRAY DATA PRE-PROCESSING069 20 0 SURFACE DATA PRE-PROCESSING (PASS 1) ... 1.173 64 SURFACE DATA PRE-PROCESSING (PASS 2)224 1141 BCS DATA PRE-PROCESSING143 201 FORM FACTOR DATA PRE-PROCESSING744 1169 SHADOW DATA PRE-PROCESSING 0. 0 . 0 Ο. FLUX DATA PRE-PROCESSING 0 0 CORRESPONDENCE DATA PRE-PROCESSING198 101 OPERATIONS DATA PRE-PROCESSING 1.756 2 892 SUBROUTINE DATA PRE-PROCESSING137 0 SEQUENTIAL TAPE INITIATION026 0 0 6.588 DECIMAL SECONDS OR 000007 OCTAL SECONDS TOTAL CP TIME FOR PRE-PROCESSOR TOTAL PP TIME FOR PRE-PROCESSOR 21 DECIMAL SECONDS OR 000025 OCTAL SECONDS MINIMUM DYNAMIC STURAGE NEEDED BY PRE-PROCESSOR .. 1169 DECIMAL WORDS DYNAMIC STORAGE AVAILABLE TO PRE-PROCESSOR 3384 DECIMAL WORDS MINIMUM CORE NEEDED FOR PRE-PROCESSOR EXECUTION .. 071000 OCTAL * * * * * * * * *

19

NORMAL TERMINATION BY PRE-PROCESSOR

NUMBER OF CAUTION MESSAGES ..

* * * * * * * * *

NASA/MARTIN MARIETTA THERMAL RADTATION ANALYSIS SYSTEM CDC6500/SCOPE 3.4

TITITITITITI TITITITITITI TTT TT TTT TTT ΪĪ TRASYS TTT RRRRRRRRR TTT RRRRRRRRRRR TTT RRR RRR TTTTTTT RRR RRR RRRRRRRRRR RRR RRR AAAAAA RRR RRR AAAAAAAA RRR RRR AAAAAAAAA RRRR RRR AAA AAA AAA AAA AAAAAAAAAA AAA AAA SSSSSSSSS AAA AAA SSSSSSSSSS AAA AAA AAAAA AAAAA SSS SSS SSSSSSSSS SSS YYYY YYYY SSS YYY YYY SSSSSSSSSS YYY YYY SSSSSSSSS YYY YYY YYYYY YYY SSSSSSSSS YYY SSSSSSSSSS YYY SS SSS YYYYYYY SSS SSSSSSSSS SSS SSS SSSSSSSSSS

SSSSSSSSS

PRE-PROCESSOR EXECUTION

LATEST LIBRARY MOD.VER NUMBER SL2E1
LAST LIBRARY MODIFICATION DATE 05/09/77

PAGE

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE

DATE 05/10/77 TIME 16.50.39.

MODEL=SAMPLE CONFIG=ENCL1 STEP=-1

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

PROCESSING OPERATIONS DATA

NODE	BCS	AREA	ALPH	EMISS	SURF. TYPE	ACTIVE	COMMENTS		
1 2 3 4 5 101	BOXINR BOXINR BOXINR BOXINR LIDINR MESSR	1.00000 1.00000 1.00000 1.00000 1.00000	.900 .900 .900 .900	.900 .900 .900 .900	RECTANGLE RECTANGLE RECTANGLE RECTANGLE RECTANGLE RECTANGLE	BOTTOM BOTTOM TOP TOP BOTTOM TOP	INNER RIGHT FRONT INNER RIGHT SIDE INNER RIGHT BACK INNER RIGHT BOTTOM INNER RIGHT LID PRIMARY MESS NODE, RIGHT SIDE		

NODE, AREA, AND PROPERTIES ARRAYS HAVE BEEN WRITTEN ON THE -RSO- TAPE BY -BUILDC- (ACCESS NUMBER= 1)

ADJUSTING FIELD LENGTH TO 100200 FOR THE FF SEGMENT

CANNOT ADJUST FIELD LENGTH TO 100200 LEAVING FIELD LENGTH AT 075000 AND CONTINUING

\ \

DATE 05/10/77 TIME 16.50.42. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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3

MODEL=SAMPLE CONFIG=ENCL1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

FORM FACTORS AND COMBINED FORM FACTORS - USER INPUT AND DEFAULT PARAMETERS

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
FFACC FFACCS FFMIN FFNOSH +FFPNCH FFPRNT FFRATL FFCMB	.0500 .1000 1.0E-06 SHAD NO YES 15.0 CORR	.0500 .1000 1.0E-06 SHAD NO YES 15.0 CORR	ORIENTATION ACCURACY PARAMETER SHADOWING ACCURACY PARAMETER PARAMETER TO ELIMINATE SMALL FORM FACTORS OVER RIDE SHADOWING PARAMETER PARAMETER TO PUNCH FORM FACTORS FLAG FOR COMPREHENSIVE FF AND CM PRINT RATIO FOR USING SUB-NODE TECHNIQUE FLAG FOR COMBINING FORM FACTORS	N/A N/A N/A N/A (SHAD,NOSH) (YES,NO) (YES,NO,FF,CM,RB) N/A (YES,NO,AUTO,CORR)

^{+ -}FFPNCH WILL DEFAULT TO -YES- ON CALCULATED VALUES IF THE -RSO- FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 05/10/77 TIME 16.50.44.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

PAGE

MODEL=SAMPLE CONFIG=ENCL1 STEP=-1 FORM FACTOR CALCULATION LINK.

ALPH EMISS AREA NODE 1 1.00000 .900 .900 .900 .900 2 1.00000 .900 .900 3 1.00000 .900 .900 4 1.00000

5 1.00000 101 1.00000

6 NUMBER OF SURFACES = 6 NUMBER OF NODES =

.900 .900

1.000 1.000

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DATE 05/10/77 TIME 16.50.44.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=FNCL1 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)

(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NOD	EI	NODE J	COMPUTATION	FIR(I.J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J.I) W/SHAD	FF(I.J) WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME	NEI	NEJ
	1	2	CAL	.199570	.199570	.199570	.199570	.199570	1.000000	1.000000	.089	16	. 1
	1	3	CAL	.201741	.201741	.201741	.201741		1.000000	1.000000	.061	16	i
	1	4	CAL	.199570	.199570	.199570	.199570	.199570	1.000000	1.000000	.060	16	i
	1	5	CAL	.199570	.199570	.199570	.199570	.199570	1.000000	1.000000	.065	16	i
	1	101	CAL	.199570	.199570	.199570	.199570	.199570	1.000000	1.000000	.059	16	1
	1	FF SUM	= 1.0000	ROW CP T	IME =	.380							·
	2	3	CAL	100570	.199570	100570	400570						
	2	4	CAL	.199570	.199570	.199570	.199570		1.000000	1.000000	.060	16	. 1
	2	5	CAL	.199570	.199570	.199570	.199570		1.000000	1.000000	.065	16	1
	2	101	CAL	.201741	.199370	.201741	.199570		1.000000	1.000000	.060	16	1
	2	FF SUM		ROW CP T		.275	.201741	.201741	1.000000	1.000000	.059	16	1
			•										
,	3	4	CAL	.199570	.199570	.199570	.199570	. 199570	1.000000	1.000000	.061	16	1
ת ת	3	5	CAL	.199570	.199570	.199570	.199570		1.000000	1.000000	.059	16	i
	3	101	CAL	.199570	.199570	.199570	.199570		1.000000	1.000000	.060	16	i
	3	FF SUM	= 1.0000	ROW CP T	IME =	.203					•000	.0	•
	4	5	CAL	.201741	.201741	.201741	.201741	.201741	1.000000	1.000000	.062	16	1
	4	101	CAL	.199570	.199570	.199570	.199570	.199570	1.000000	1.000000	.059	16	1
	4	FF SUM	= 1.0000	ROW CP T	IME =	.136							·
	5	101	CAL	.199570	.199570	100570	400550						
	5		= 1.0000	ROW CP T		.199570 .069	.199570	. 199570	1.000000	1.000000	.060	16	1
	101	FF SUM	= 1.0000	ROW CP T	IME =	.001							

DATE 05/10/77 TIME 16.50.47.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

MODEL=SAMPLE CONFIG=ENCL1 STEP=-1 FORM FACTOR CALCULATION LINK.

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

NODE I- FF SUM NODE I- FF SUM NODE I- FF SUM NODE I- FF SUM NODE I- FF SUM

1- 1.0000 2- 1.0000 3- 1.0000 4- 1.0000 5- 1.0000 101- 1.0000

TOTAL TIME FOR FORM FACTOR SEGMENT 1.218

TOTAL TIME SINCE START OF RUN 50.645

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 052500 FOR THE GB SEGMENT

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DATE 05/10/77 TIME 16.50.48.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=ENCL1 STEP=-1 GRAY BODIES COMPUTATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

GREY BODIES

VARIABLE CURRENT DEFAULT
NAME VALUE

DEFINITION

OPTIONS -

GBWBND IR

NONE

WAVEBAND DEFINITION PARAMETER

(IR, SOL, BOTH)

IR GRAY BODIES STORED FOR CONFIGURATION ENCL1

TOTAL TIME TO COMPUTE GRAY BODIES

. 18

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 050000 FOR THE RC SEGMENT

DATE 05/10/77 TIME 16.50.51. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE

MODEL=SAMPLE CONFIG=ENCL1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

	_			
VARIABLE NAME	CURRENT VALUE	DEFAULT	RADIATION CONDUCTORS DEFINITION	OPTIONS
RKPNCH RKMIN IRKCN RKSP IRKNSP SIGMA RKAMPF RKIAPE RFRAC RTOL NERN	PUN .0001 1 NO 32767 1.71E-09 1.00 NO 7.0E-01	NO 0.0001 1 NO 32767 1.713E-9 1.0 NO 0.7 0.99	PUNCH/NO PUNCH PARAMETER FOR RADKS PARAMETER TO ELIMINATE SMALL RADK S INITIAL RADIATION CONDUCTOR ID NUMBER MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE SPACE NODE ID NUMBER STEFAN-BOLTZMANN CONSTANT AREA MULTIPLYING FACTOR PARAMETER TO OUTPUT TO BCD TAPE SIGNIFICANT RADIATION FRACTION DECIMAL FRACTION OF LAST RADK SAVED EFFECTIVE RADIATION NODE (ERN) NUMBER	(YES.NO)

DATE 05/10/77 TIME 16.50.52. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=ENCL1 STEP=+1 RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

SPECIAL RADIATION NODES

NONE

MESS SPECIAL NODES

PRIMARY SECONDARY

101 111 DATE 05/10/77 TIME 16.50.52. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

MODEL=SAMPLE CONFIG=ENCL1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK.

RADIATION CONDUCTOR (RADKS) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

					4	2	1.7130000E-09*	1.7227783E-01
	PUNCHED	RADKS	-	1,	1.	2,	1 7130000E-09*	1.7400479E-01
	PUNCHED	RADKS	_	2.	1,	3,		1.7231450E-01
	PUNCHED	RADKS	-	3.	1.	4,	1.7130000E-09*	1.7231450E-01
	PUNCHED		_	4.	1,	5,	1.7130000E-09*	
	PUNCHED		_	5.	-1,	101,	1.7130000E-09*	1.9528148E-01
	PUNCHED		_	6,	-111,	1,	1.7130000E-09*	1.9528148E-01
			_	7.	2.	3.	1.7130000E-09*	1.7227783E-01
	PUNCHED		_	8.	2.	4.	1.7130000E-09*	1.7227783E-01
	PUNCHED			9.	2,	5.	1.7130000E-09*	1.7227783E-01
	PUNCHED		-			101,	1.7130000E-09*	1.9715549E-01
	PUNCHED		-	10.	-2,	2.	1.7130000E-09*	1.9715549E-01
	PUNCHED	RADKS	-	11.	-111.	•	1.7130000E-09*	1.7231450E-01
	PUNCHED	RADKS	_	12.	3,	4.	1.7130000E-09*	1.7231450E-01
	PUNCHED	RADKS	-	13,	3,	5,		1.9528148E-01
	PUNCHED	RADKS	-	14.	-3,	101,	1.7130000E-09*	1.9528148E-01
	PUNCHED			15.	-111,	3,	1.7130000E-09*	
	PUNCHED		_	16.	4.	5,	1.7130000E-09*	1.7400479E-01
н.	PUNCHED		-	17.	-4.	101,	1.7130000E-09*	1.9528148E-01
ī			-	18.	-111,	4.	1.7130000E-09*	1.9528148E-01
5	PUNCHED		_	19,	-5.	101.	1.7130000E-09*	1.9528148E-01
5	PUNCHED				-111,	5.	1.7130000E-09*	1.9528148E-01
	PUNCHED		-	20.		111.	1.7130000E-09*	2.1740377E-02
	PUNCHED	RADKS	-	21.	-101,		1	

DATE 05/10/77 TIME 16.50.53. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=ENCL1 STEP=-1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

THE INPUT SIGNIFICANT RADIATION FRACTION = .700

THE NUMBER OF CONDUCTORS INPUT = THE NUMBER OF CONDUCTORS OUTPUT = . 21 WHICH IS A O. PERCENT REDUCTION IN THE NUMBER OF CONDUCTORS.

100.0 PERCENT OF THE TOTAL EMISSIVE POWER IS EXACTLY COUPLED.

TOTAL TIME TO COMPUTE AND CONDENSE RADKS = ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE 12 DATE 05/10/77 TIME 16.50.54. SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL MODEL=SAMPLE CONFIG=ENCL2 STEP==2 PROCESSING OPERATIONS DATA ALPH EMISS SURF. TYPE ACTIVE -----COMMENTS-----AREA NODE BCS INNER RIGHT FRONT BOTTOM .900 RECTANGLE .900 1.00000 11 BOXINL INNER RIGHT SIDE .900 RECTANGLE BOTTOM .900 1.00000 12 BOXINL INNER RIGHT BACK TOP .900 RECTANGLE .900 1.00000 13 BOXINL INNER RIGHT BOTTOM .900 RECTANGLE TOP .900

BOTTOM INNER LEFT LID

BOTTOM PRIMARY MESS NODE, LEFT SIDE

NODE, AREA, AND PROPERTIES ARRAYS HAVE BEEN WRITTEN ON THE -RSO- TAPE BY -BUILDC- (ACCESS NUMBER= 2)

.900 RECTANGLE

1.000 1.000 RECTANGLE

ADJUSTING FIELD LENGTH TO 100200 FOR THE FF SEGMENT

.900

1.00000

1.00000

1.00000

14 BOXINL

15 LIDINL

111 MESSL

CANNOT ADJUST FIELD LENGTH TO 100200 LEAVING FIELD LENGTH AT 075000 AND CONTINUING

DATE 05/10/77 TIME 16.50.56. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

FORM FACTORS AND COMBINED FORM FACTORS - USER INPUT AND DEFAULT PARAMETERS

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
FFACC FFACCS FFMIN FFNOSH +FFPNCH FFPRNT FFRATL FFCMB	.0500 .1000 1.0E-06 SHAD NO YES 15.0	.0500 .1000 1.0E-06 SHAD NO YES 15.0 CORR	ORIENTATION ACCURACY PARAMETER SHADOWING ACCURACY PARAMETER PARAMETER TO ELIMINATE SMALL FORM FACTORS OVER RIDE SHADOWING PARAMETER PARAMETER TO PUNCH FORM FACTORS FLAG FOR COMPREHENSIVE FF AND CM PRINT RATIO FOR USING SUB-NODE TECHNIQUE FLAG FOR COMBINING FORM FACTORS	N/A N/A N/A N/A (SHAD.NOSH) (YES.NO) (YES.NO,FF.CM,RB) N/A (YES.NO,AUTO.CORR)

^{+ -}FFPNCH WILL DEFAULT TO -YES- ON CALCULATED VALUES IF THE -RSO- FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

PAGE

14

MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 FORM FACTOR CALCULATION LINK.

DATE 05/10/77 TIME 16.50.57.

AREA ALPH EMISS NODE .900 .900 11 1.00000 .900 .900 1.00000 12 .900 .900 1.00000 13 .900 .900 1.00000 14 .900 .900 1.00000 15 1.000 1.000 1.00000

6 NUMBER OF SURFACES = NUMBER OF NODES =

111

DATE 05/10/77 TIME 16.50.57.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)
(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)
(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, GR CARD INPUT)
(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

	NODE I	NODE J	COMPUTATION	FIR(I,J) W/SHAD	FIR(J,I) W/SHAD	FSGL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF(I,J) WO/SHAD		SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ
	11 11 11 11 11	12 13 14 15 111 FF SUM	CAL CAL CAL CAL CAL = 1.0000	.199570 .201741 .199570 .199570 .199570 ROW CP T	.199570 .201741 .199570 .199570 .199570	.199570 .201741 .199570 .199570 .199570	.199570 .201741 .199570 .199570	.201741 .199570 .199570	1.000000 1.000000 1.000000 1.000000	1.00000 1.00000 1.00000 1.00000 1.00000	.089 .061 .059 .059	16 16 16 16	1 1 1 1
	12 12 12 12 12	13 14 15 111 FF SUM	CAL CAL CAL CAL	.199570 .199570 .199570 .201741 ROW CP T	.199570 .199570 .199570 .201741 IME. =	.199570 .199570 .199570 .201741	.199570 .199570 .199570 .201741	.199570 .199570	1.000000 1.000000 1.000000 1.000000	1.000000 1.00000 1.00000 1.00000	.059 .063 .061	16 16 16	1 1 1
H-265	13 13 · 13 13	14 15 111 FF SUM	CAL CAL CAL = 1.0000	.199570 .199570 .199570 ROW CP T	.199570 .199570 .199570 IME =	.199570 .199570 .199570	.199570 .199570 .199570	.199570	1.000000	1.000000	.058 .062 .058	16 16 16	1 1 1
	14 14 14	15 111 FF SUM	CAL CAL = 1.0000	.201741 .199570 ROW CP T	.201741 .199570 IME =	.201741 .199570 .137	.201741 .199570		1.000000	1.000000	.060 .061	16 16	1
	15 15	111 FF SUM	CAL = 1.0000	.199570 ROW CP T	.199570 IME =	.199570 .070	.199570	.199570	1.000000	1.000000	.059	16	1
	111	FF SUM	= 1.0000	ROW CP TI	IME =	.003							

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DATE 05/10/77 TIME 16.51.01.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 FORM FACTOR CALCULATION LINK. SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

NODE I- FF SUM NODE I- FF SUM NODE I- FF SUM NODE I- FF SUM NODE I- FF SUM

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

11- 1.0000 12- 1.0000 13- 1.0000 14- 1.0000 15- 1.0000 111- 1.0000

TOTAL TIME FOR FORM FACTOR SEGMENT 1.207

TOTAL TIME SINCE START OF RUN 53.001

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 052500 FOR THE GB SEGMENT

DATE 05/10/77 TIME 16.51.02. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

17

MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 GRAY BODIES COMPUTATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

GREY BODIES

VARIABLE CURRENT DEFAULT NAME VALUE

DEFINITION

OPTIONS

GBWBND ΙR

NONE

WAVEBAND DEFINITION PARAMETER

(IR, SOL, BOTH)

IR GRAY BODIES STORED FOR CONFIGURATION ENCL2

TOTAL TIME TO COMPUTE GRAY BODIES

.17

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 050000 FOR THE RC SEGMENT

DATE 05/10/77 TIME 16.51.05. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE 18

MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

VARIABLE NAME	CURRENT VALUE	DEFAULT	RADIATION CONDUCTORS DEFINITION	OPTIONS
RKPNCH RKMIN IRKCN RKSP IRKNSP SIGMA RKAMPF RKTAPE RFRAC RTOL NERN	PUN .0001 1 NO 32767 1.71E-09 1.00 NO 7.0F-01 1.00CE-99 555	NO 0.0001 1 NO 32767 1.713E-9 1.0 NO 0.7 0.99	PUNCH/NO PUNCH PARAMETER FOR RADKS PARAMETER TO ELIMINATE SMALL RADK S INITIAL RADIATION CONDUCTOR ID NUMBER MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE SPACE NODE ID NUMBER STEFAN-BOLTZMANN CONSTANT AREA MULTIPLYING FACTOR PARAMETER TO OUTPUT TO BCD TAPE SIGNIFICANT RADIATION FRACTION DECIMAL FRACTION OF LAST RADK SAVED EFFECTIVE RADIATION NODE (ERN) NUMBER	(YES.NO)

DATE 05/10/77 TIME 16.51.02.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 GRAY BODIES COMPUTATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

GREY BODIES

VARIABLE CURRENT DEFAULT

DEFINITION

OPTIONS

NAME VALUE

GBWBND IR NONE

WAVEBAND DEFINITION PARAMETER

(IR,SOL,BOTH)

IR GRAY BODIES STORED FOR CONFIGURATION ENCL2

TOTAL TIME TO COMPUTE GRAY BODIES

. 17

ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 050000 FOR THE RC SEGMENT

18 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE DATE 05/10/77 TIME 16.51.05.

MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 RADIATION CONDUCTOR GENERATION LINK.

555

1.0CCE-99 0.99

RFRAC

RTOL

NERN

0

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

N/A

N/A

VARIABLE	CURRENT	DEFAULT	RADIATION CONDUCTORS DEFINITION	OPTIONS
NAME	VALUE			
RKPNCH RKMIN IRKCN RKSP IRKNSP SIGMA RKAMPF RKTAPE REFRAC	PUN .0001 1 NO 32767 1.71E-09 1.00 NO 7.0F-01	NO 0.0001 1 NO 32767 1.713E-9 1.0 NO 0.7	PUNCH/NO PUNCH PARAMETER FOR RADKS PARAMETER TO ELIMINATE SMALL RADK S INITIAL RADIATION CONDUCTOR ID NUMBER MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE SPACE NODE ID NUMBER STEFAN-BOLTZMANN CONSTANT AREA MULTIPLYING FACTOR PARAMETER TO OUTPUT TO BCD TAPE SIGNIFICANT RADIATION FRACTION	(YES,NO) N/A N/A (SPACE,NO) N/A N/A (TAPE,NO) (O. TO 1.)

DECIMAL FRACTION OF LAST RADK SAVED

EFFECTIVE RADIATION NODE (ERN) NUMBER

DATE 05/10/77 TIME 16.51.06. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

SPECIAL RADIATION NODES

NONE

MESS SPECIAL NODES

PRIMARY SECONDARY

111 101

MODEL=SAMPLE CONFIG=ENCL2 STEP==2 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

RADIATION CONDUCTOR (RADKS) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

		***	11.	11,	1.7130000E-09*	1.3826315E-02
PUNCHED RADK	s -	1,	11,	12,	1.7130000E-09*	1.7227783E-01
PUNCHED RADK		2.	11.	13,	1.7130000E-09*	1.7400479E-01
PUNCHED RADK		3.	11,	14,	1.7130000E-09*	1.7231450E-01
PUNCHED RADK		4.	11.	15.	1.7130000E-09*	1.7231450E-01
PUNCHED RADA		5.	-11.	111.	1.7130000E-09*	1.9528148E-01
PUNCHED RADA		6.	-101	11.	1.7130000E-09*	1.9528148E-01
PONCHED KADA	.5		,	•		
		****	12,	12.	1.7130000E-09*	1.3752613E-02
PUNCHED RADA	/c _	7.	12,	13.	1.7130000E-09*	1.7227783E-01
PUNCHED RADA		8.	12.	14.	1.7130000E-09*	1.7227783E-01
PUNCHED RADI		9,	12.	15.	1.7130000E-09*	1.7227783E-01
PUNCHED RADI		10.	-12.	111.	1.7130000E-09*	1.9715549E-01
PUNCHED RADI		11.	-101,	12,	1.7130000E-09*	1.9715549E-01
PUNCHED RADA	(3	1	1011	· - •	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
		***	13.	13.	1.7130000E-09*	1.3826315E-02
PUNCHED RADA	(S -	12.	13,	14.	1.7130000E-09*	1.7231450E-01
PUNCHED RADI		13.	13,	15.	1.7130000E-09*	1.7231450E-01
PUNCHED RADI		14.	-13.	111.	1.7130000E-09*	1.9528148E-01
PUNCHED RADA		15.	-101.	13.	1.7130000E-09*	1.9528148E-01
PONCHED RADA	(5	•				
		****	14.	14,	1.7130000E-09*	1.3826315E-02
PUNCHED RADI	ks -	16.	14.	15,	1.7130000E-09*	1.7400479E-01
PUNCHED RADI		17.	-14.	111,	1.7130000E-09*	1.9528148E-01
PUNCHED RADI		18.	-101.	14,	1.7130000E-09*	1.9528148E-01
TONONED NAD		, ,				
		***	15,	15,	1.7130000E-09*	1.3826315E-02
PUNCHED RADI	ks =	19.	-15.	111,	1.7130000E-09*	1.9528148E-01
PUNCHED RADI		20.	-101,	15,	1.7130000E-09*	1.9528148E-01
, SHOWED RADI		,				
PUNCHED RADA	κs -	21.	-111,	101,	1.7130000E-09*	2.1740377E-02
		- · •	•			

DATE 05/10/77 TIME 16.51.07. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=ENCL2 STEP=-2 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 4 - FFCAL/GBCAL/RCCAL

THE INPUT SIGNIFICANT RADIATION FRACTION = .700

THE NUMBER OF CONDUCTORS INPUT = THE NUMBER OF CONDUCTORS OUTPUT = 21 WHICH IS A O. PERCENT REDUCTION IN THE NUMBER OF CONDUCTORS.

100.0 PERCENT OF THE TOTAL EMISSIVE POWER IS EXACTLY COUPLED.

TOTAL TIME TO COMPUTE AND CONDENSE RADKS = .45 ADJUSTING FIELD LENGTH TO 036700 FOR THE OD SEGMENT

TRASYS II

AAA AAA AAAA AAAA

YYYYYY

SSSSSSSSS

PRE-PROCESSOR EXECUTION

 VERSION. MODIFICATION
 SC2E2

 MODIFICATION DATE
 05/09/77

 DATE OF RUN
 06/01/77

 TIME OF RUN
 17.56.15

JOB NUMBER RGEX1CJ

H-272

DATE 06/01/77 TIME 17.56.16.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6509/SCOPE VERSION

PAGE

GE

MODEL = N/A

OPTION AND TITLE DATA BLOCKS

CARD ORGIN

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. DLD EDIT NO. LABEL

INPUT

HEADER OPTIONS DATA

INPUT TITLE SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

 INPUT
 MODEL
 = SAMPLE

 INPUT
 RSO
 = RSTSAM5

 INPUT
 RSI
 = RSTSAM5

2

ATTENTION TRASYS USERS

NEWRL 04/02/76

THE TRASYS -N- VERSION HAS BEEN UPDATED TO SC2D1 AND SL2D1.

ALL TRASYS T VERSION USERS SHOULD CONVERT THEIR MODELS TO THE TRASYS N VERSION. HOWEVER, THIS CONSTITUTES A CHANGE TO THE CALL TO THE FOLLOWING ROUTINES ...

DIDT1, DIDT1S, DIDT2, DIDT2S, DIDT3, DIDT3S, GBAPRX, RCDATA, RKDATA

CALL DIDT1 (DINOSH, DIACC, DIACCS, TRUEAN, NSPFF, TIMEPR, DIPNCH, ISFAC)

CALL DIDTIS (TRUEAN, NSPFF, TIMEPR, DIPNCH, ISFAC)

CALL DIDT2 (DINOSH.DIACC.DIACCS, NSPFF, SUNCL, SUNCO, PLCL, PLCO, TIMEPR, ALT, DIPNCH, ISFAC)

CALL DIDT2S (NSPFF,SUNCL,SUNCO,PLCL,PLCO,TIMEPR, ALT,DIPNCH,ISFAC)

CALL DIDT3 (DINOSH, DIACCS, TIMEPR, DIPNCH, ISFAC)

CALL DIDT3S (ITOD, ISFAC)

WHERE ...

ISFAC * 3HYES CAUSES DIRECT FLUX SHADOW FACTORS TO BE WRITTEN TO THE RSO FILE. THIS DATA IS SKIPPED ON RESTART.

NO SHADOW FACTORS WILL BE WRITTEN TO THE RSO FILE. (CURRENT METHOD).

CALL GBAPRX (GBWBND, 6HCFIBFF)

WHERE ...

CFIGFF = THE CONFIGURATION NAME FOR FORM FACTOR ACCESS.

CALL RCDATA (6HCFIGGB, RKPNCH, RKMIN, IRKCN, RKSP, IRKNSP, SIGMA, RKAMPF, RKTAPE, RFRAC, NERN, IPRIME, ISECND)

CALL RKDATA (6HCFIGGB, RKPNCH, RKMIN, IRKCN, RKSP, IRKNSP, SIGMA, RKAMPF, RKTAPE)

WHERE ...

CFIGGB = THE CONFIGURATION NAME FOR GRAY BODY FACTOR
ACCESS

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DATE 06/01/77 TIME 17.56.17. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE TRASYS INFORMATION TO USER SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

OPTIONS DATA -INFO- OPTIONS ARE ...

INFO = BUI	LD BUILD EX	XECUTION CARD
INFO = INFO	ו סד שפא ס	USE TRASYS INFO FILE
INFO = ITR	CPP PREPROCE	ESSOR TRACE FLAGS
INFO = RKC	AL INFO. ON	N DELETION OF THE RKCAL LINK
INFO = STE	P INFO. ON	N USING STEP CARDS
INFO = CCA	RDS INFO. ON	N TRASYS CONTROL CARDS

END OF TRASYS INFORMATION FILE

++NOTE++ DATA ORIGINATION FROM INPUT FILE, NO -RSI- SOURCE EDITING

DATE 06/01/77 TIME 17.56.18. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

PAGE

MODEL = SAMPLE MODEL HISTORY

MODEL NAME SAMPLE

MODEL TITLE SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

CMERG EMERG BCDOU TRAJ USER1 USER2 RSO RTO RTI RSI MOD RUN JOB RUN RUN TAPE TAPE TAPE TAPE TAPE TAPE TAPE TIME TAPE TAPE DATA LABEL NUMBER

AA RGEX1CJ 06/01/77 17.56.17 RSTSAM5RSTSAM5

H-2/6

DATE 06/01/77 TIME 17.56.18. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

PAGE

MODEL = SAMPLE

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

SOURCE DATA EDIT DIRECTIVES

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL CARD ORGIN

1++ -RSI- WAS SPECIFIED IN OPTION DATA BLOCK BUT WAS NEVER USED IN SOURCE EDITING ++CAUTION

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

	SURFACE DATA INPU					LAGET
	CARD ORGIN	123456	78 1 2 3456 7 8	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8		LABE L AA
	INPUT	HEADER	SURFACE DATA		1 2	AA
	INPUT	^				ÄÄ
	=		THIS SUDFACE	DATA BLOCK IS USED IN SAMPLE CASES 1 THROUGH 5	3	
	INPUT	C	WITH WARTING	PORTIONS OF IT BEING ACTIVATED FOR THE DIFFERENT	4	AA
	INPUT			FOR 1013 6. 11 BESTE 115	5	AA
	INPUT	C	CASES.	•	6	AA -
	INPUT	C	0044110		7	AA
	INPUT	BCS	BOXINR		8	AA
	INPUT	S	SURFN	= 1	9	AA
	INPUT		TYPE	= RECT	10	AA
	INPUT		ACTIVE	= BOTTOM	11	AA
	INPUT		PROP	= 0.9,0.9	12	AA
	INPUT		P1	= 1.0, 0.0, 1.0	13	AA
	INPUT		P2	= 1.0, 0.0, 0.0	14	AA
	INPUT		P3	= 1.0, 1.0, 0.0	15	AA
	INPUT		COM	= * INNER RIGHT FRONT *	16	AA
	INPUT	S	SURFN	= 2	17	AA
	INPUT		TYPE	= RECT	18	AA
	INPUT		ACTIVE	= BOTTOM	19	AA
	INPUT		PROP	= 0.9,0.9	20	AA
1	INPUT		P1	= 1.0, 1.0, 1.0	21	AA
3	INPUT		P2	= 1.0, 1.0, 0.0	22	AA
Ĵ	INPUT		P3	= 0.0, 1.0, 0.0	23	AA
0	INPUT		COM	= * INNER RIGHT SIDE *	24	AA
	INPUT	S	SURFN	= 3	25	AA
		•	TYPE	= RECT		AA
	INPUT		ACTIVE	= TOP	26	ÄÄ
	INPUT		PROP	= 0.9,0.9	27	ÄÄ
	INPUT		P1	= 0.0, 0.0, 1.0	28	AA
	INPUT		P2	= 0.0, 0.0, 0.0	29	AA
	INPUT		P3	= 0.0, 1.0, 0.0	30	AA
	INPUT			= * INNER RIGHT BACK *	31	
	INPUT	_	COM	= 4	32	AA
	INPUT	S	SURFN	± RECT	33	AA
	INPUT		TYPE	= TOP	34	AA
	INPUT		ACTIVE		35	AA
	INPUT		PROP	= 0.9,0.9	36	AA
	INPUT		P1	= 1.0, 1.0, 0.0 = * INNER RIGHT BOTTOM *	37	AA
	INPUT		COM	= * INNER RIGHT BOTTOM	38	AA
	INPUT	BCS	BOXINL, IMGB	CS=BOXINR, NINC=10, IREFSF=1000	39	AA
	iNPUT	С		THE THREE BOYING IN PEFERENCE PLANE 1000	40	AA
	INPUT	C	-THE FOREGOIN	G CARD IMAGES BCS BOXING IN REFERENCE PLANE 1000	41	AA
	INPUT	C	-TO CREATE BC	S BOXINL. THE INTERIOR OF THE BOX WAS INPUT IN	42	AA
	INPUT	C	-THIS MANNER	TO FACILITATE THE INPUT OF SAMPLE CASE 4 TO SHOW	43	AA
	INPUT	C	-THE USE OF "	MESS" AND "ERN" NODES.	44	AA
	INPUT	С		BOS (P	(0)	
		_	IMAGING SURF	Are il Bir i bul, deligiblitud som not i ili tati	iD)	
			IMAGING SURF	ACE 2) RCS (BD), GENERALING SURFACE (12) 500 (io)	
			IMAGING SURF	ACE 3) BCS (BU), GENERATING SURFACE (14) BCS (BU)	50)	
			IMAGING SURF	ACE 4) BCS (BO), GENERATING SURFACE (14) BCS (B	45	AA
	INPUT	R	REFNO	= 1000	46	AA
	INPUT	**	P1	= 1.0, 0.0, 1.0	47	AA
	INPUT		P2	= 1.0, 0.0, 0.0	7.	- ***
	INFOI		. =			

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

CARD ORGIN		 678 1 2 345 678	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 234	5678 8 EDIT NO. OLD EDIT NO.	LABEL
INPUT		P3	= 0.0, 0.0, 0.0	48	AA
INPUT		COM	= * IMAGING PLANE *	49	AA
INPUT	BCS	LIDINR		50	AA
INPUT	S	SURFN	= 5	51	AA
INPUT	•	TYPE	= RECT	52	AA
INPUT		ACTIVE	= BOTTOM	53	AA ·
INPUT		PROP	= 0.9,0.9	54	AA
INPUT		P1	= 1.0, 1.0, 0.0	55	AA
INPUT		COM	= * INNER RIGHT LID *	56	AA
INPUT	s	SURFN	= 15	57	AA
INPUT	•	IMAGSF	= 5	58	AA
INPUT		IREFSF	= 1000	59	AA
INPUT		COM	= * INNER LEFT LID *	60	AA
INPUT	BCS	BOXOUT		61	AA
INPUT	S	SURFN	= 21	62	AA
INPUT	•	TYPE	= BOX5	63	AA
INPUT		ACTIVE	= OUT	64	AA
INPUT		SHADE	= NO	65	AA
INPUT		PROP	= 0.2,0.9	66	AA
INPUT		P1	= 1.01,-1.01, 1.01	67	AA
INPUT		P2	= 1.01, 1.01, 1.01	68	AA
INPUT		P3	=-0.01, 1.01, 1.01	69	AA
INPUT		P4	=-0.01, 1.01, -0.01	70	AA
INPUT		COM	= * OUTER SURFACES *	71	AA
INPUT	BCS	LIDOUT	- + GOTER SONTROLS	72	AA
INPUT	S	SURFN	= 26	73	AA
INPUT -	3	TYPE	= RECT	74	AA
		ACTIVE	= TOP	75	AA
INPUT INPUT		SHADE	= NO ·	76	AA
INPUT		PROP	= 0.2,0.9	77	AA
		P1	= 1.01,-1.01, 0.01	78	AA
INPUT		P2	= 1.01, 1.01, 0.01	79	AA
INPUT		P3	=-0.01, 1.01, 0.01	80	AA
INPUT		COM	= * OUTER SURFACE OF LID *	81	· AA
INPUT	•	COM	= + UOIER SORFACE OF LID .	82	AA
INPUT	C	THE NEVT THE	BCS'S (MESSR AND MESSL) ARE ACTIVATED IN SAMPLE	83	AA
INPUT				8 4	AA
INPUT INPUT		-CASE 4 ONLY		85	AA
INPUT	C BCS	MESSR		86	AA
	S	SURFN	= 101	87	AA
INPUT	3	TYPE	= RECT	88	AA
INPUT		ACTIVE	= TOP	89	AA
INPUT			= 1.0,1.0 = 1.0,1.0	90	AA
INPUT		PROP P1	= 1.0, 0.0, 1.0	91	AA
INPUT		P2	= 1.0, 0.0, 1.0	92	AA
INPUT				93	ÄÄ
INPUT		P3	= 0.0, 0.0, 0.0 = * PRIMARY MESS NODE, RIGHT SIDE *	94	ÄÄ
INPUT	205	COM	LUTHWILL HESS HORE! HIGHE STAF -	95	ÄÄ
INPUT	BCS	MESSL	= 111	96	ÄÄ
INPUT	S	SURFN	= TTT = RECT	97	ÄÄ
INPUT		TYPE	= RECT = BOTTOM	98	ÄÄ
INPUT		ACTIVE	- BUTTOM	•	

MODEL = SAMPLE SURFACE DATA INPUT BLOCK SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

CARD DRGIN	12345678 1	2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 23456	78 B EDIT NO. OLD EDIT NO.	
	222	= 1.0,1.0	9 9	AA
INPUT	PRO		100	AA
INPUT	P1	= 1.0, 0.0, 1.0	101	AA
INPUT	P2	= 1.0, 0.0, 0.0	102	AA
INPUT	Р3	= 0.0, 0.0, 0.0	103	AA
INPUT	COM	= * PRIMARY MESS NODE, LEFT SIDE *	104	AA
INPUT	С		105	AA
INPUT	CTHE	OLLOWING BCS (LIDSP) IS ACTIVATED IN SAMPLE CASE 5 ONLY.		ÄÄ
INPUT	C		106	ÃÃ
INPUT	BCS LID		107	
			108	AA
INPUT	•	"	109	AA
INPUT	TYP		110	AA
INPUT	ACT		111	AA
INPUT	PRO	a =	112	AA
INPUT	SPR		113	AA
INPUT	SPR		114	AA
INPUT	P1	= 1.01.0, 0.0	115	AA
INPUT	P2	± 1.0, 1.0, 0.0	116	AA
INPUT	P3	= 0.0, 1.0, 0.0	117	AA
INPUT	COM	= * SPECULAR LID *	111	.,,,

DATE 06/01/77 TIME 17.56.26.	THERMAL RADIATION	ANALYSIS SYSTEM (TRASYS)	CDC6500/SCOPE VERSION	PAGE 9
MODEL = SAMPLE BCS DATA INPUT BLOCK	SAMPLI	E CASE 5 - FFCAL/RBCAL/GBC	CAL/RKCAL/OREGEN/DRCAL/AQC	AL/QOCAL
CARD ORGIN 12345678 1 2345	78 2 2345678 3 234567	8 4 2345678 5 2345678 6 23	345678 7 2345678 8 EDIT NO	OLD EDIT NO. LABEL
INPUT BCS BOXOUT INPUT BCS LIDOUT, INPUT BCS MESSR INPUT BCS MESSL	.,0.,1.,0.,-45.,0. .,0.,1.,0.,-45.,0.		118 119 120 121 122 123 124 125	AA AA AA AA AA AA

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

MODEL = SAMPLE FORM FACTOR DATA INPUT BLOCK

	CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2	345678 8 EDIT NO. OLD EDIT NO.	LABEL
		WEADER FORM FACTOR DATA	127	AA
	INPUT	HEADER FORM FACTOR DATA	128	AA
	INPUT	C CENTER KNOWN ZERO FORM FACTORS AND EQUIVALENT FORM FACTORS FOR	129	AA
	INPUT.		130	AA
	INPUT	CCASE5.	131	AA
	INPUT	C .	132	AA
	INPUT	FIG CASE1	133	AA
	INPUT	NODEA 1,2,3,4,11,12,13,14,200,21,22,23,24,25,26,END	134	AA
	INPUT	BOTH 21,ZERO	135	AA
	INPUT	22,ZERO	136	A A
	INPUT	23, ZERO	137	AA
	INPUT	24, ZERO	138	AA
	INPUT	25, ZERO	139	AA
	INPUT	26, ZERQ	140	AA
	INPUT	1,1,0.	141	AA
	INPUT	11,12,1,2	142	AA
	INPUT	11,13,1,3	143	AA
	INPUT	11,14,1,4	144	AA
	INPUT	11,200,1,200	145	· AA
•	INPUT	1,11,0.	146	AA
•	INPUT	11,2,1,12	147	AA
2	INPUT	11,3,1,13	148	AA
3	INPUT	11,4,1,14	149	AA
	INPUT	2,2,0	150	AA
	INPUT	2,3,1,2	151	AA
	INPUT	2,4,1,4	152	AA
	INPUT	12,13,2,3	153	AA
	INPUT	12,14,2,4	154	AA
	INPUT	12,200,2,200	155	AA
	INPUT	12,3,2,13	156	AA
	INPUT	12,4,2,14	157	AA
	INPUT	3,3,0.	158	AA
	INPUT	3,4,1,4	159	AA
	INPUT	13,14,3,4	160	AA
	INPUT	13,200,3,200	161	AA
	INPUT	3,13,0.	162	AA
	INPUT	13,4,3,14	163	AA
	INPUT	4,4,0.	164	AA
	INPUT	14,200,4,200	165	AA
	INPUT	4,14,0.	166	AA
	INPUT	200,200,0.		

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DATE 06/01/77 TIME 17.56.30.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

MODEL = SAMPLE CORRESPONDENCE DATA INPUT BLOCK SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678	6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO	LABEL
INPUT	HEADER CORRESPONDENCE DATA	167	AA
INPUT	c	168	. AA
INPUT	CENTER CORRESPONDENCE DATA FOR CASE 2	169	AA
INPUT	C	170	AA
INPUT	FIG CASE2	171	AA
INPUT	1 = 1,11,22	172	AA
INPUT	2 = 2,25	173	AA
INPUT	3 = 3,13,24	174	AA
INPUT	4 = 4,14,21	175	AA
INPUT	5 = 5,15,26	176	AA
INPUT	12 = 12,23	177	AA
INPUT	c	178	AA
INPUT	CENTER CORRESPONDENCE DATA FOR CASE 3 TO COMBINE FORM	FACTORS 179	AA
INPUT	C .	180	AA
INPUT	FIG CASE3,FF	181	AA
INPUT	1 = 1,11,22	182	AA
INPUT	2 = 2,25	183	AA
INPUT	3 = 3,13,24	184	AA
INPUT	4 = 4,14,21	185	AA
INPUT	5 = 5,15,26	186	AA
INPUT	12 = 12.23	187	AA

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OPERATION DATA INPUT BLOCK (PASS 1)

DATE 06/01/77 TIME 17.56.31. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

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MODEL = SAMPLE

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

CARD ORGIN

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

INPUT

HEADER OPERATIONS DATA

188

AA

+++++ OPERATIONS DATA BLOCK (PASS 1) COMPLETE +++++

PAGE

MODEL = SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL
OPERATION DATA INPUT BLOCK (PASS 2)

	OPERATION DATA IN	PUT BLOCK (PASS 2)		
	CARD ORGIN	12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 23456	378 B EDIT NO. OLD EDIT NO.	LABEL
	INPUT	C ·	189	AA
	INPUT	CBUILD THE CASE 5 CONFIGURATION	190	AA
	INPUT	C .	191	AA
	PROG	STEP -1	-0	
	INPUT	BUILD CASES.BOXINR,BOXINL,LIDSP,BOXOUT,LIDOUT	192	AA
	PROG	CALL BUILDC (BOXINR,6HCASE5)	-0	
	PROG	CALL ADD (BOXINL)	-0	
	PROG	CALL ADD (LIDSP)	-0	
	PROG	CALL ADD (BOXOUT)	-0	
	PROG	CALL ADD (LIDOUT)	-0	
	INPUT	C	19 3	AA
	INPUT	CCALCULATE THE FORM FACTOR MATRIX.	194	AA
	INPUT	C	195	AA
	INPUT	L FFCAL	196	AA
	INPUT	C	197	AA
	INPUT	CCALCULATE IMAGE FACTORS	198	AA
	INPUT	C	199	AA
	INPUT	CALL RBDATA(0,0,0,0,0)	200	AA
	INPUT	L RBCAL	201	AA
Ξ	INPUT	C .	202	AA
5	INPUT	CCALCULATE THE GRAY BODY MATRIX USING IMAGE FACTORS.	203	AA
သွ	INPUT	C	204	AA
J	INPUT	CALL GBDATA(BOTH,0,RB)	205	AA
	INPUT	L GBCAL	206	AA
	INPUT	C	207	AA
	INPUT	CCALCULATE AND PUNCH RADIATION CONDUCTORS.	208	AA
	INPUT	C	209	AA
	INPUT	CALL RKDATA(0,0,0,0,SPACE,999,0,0,0,0)	210	AA
	INPUT	L RKCAL	211	AA
	INPUT	C	21 2	AA
	INPUT	CDEFINE ORBIT AND VEHICLE ORIENTATION (CIRCULAR-PLANET-ORIENTED)	213	AA
	INPUT	C	214	AA
	INPUT	CALL ORBIT2(EAR,0,60.,0,0,0,100.*6080.,100.*6080.)	215	AA
	INPUT	CALL ORIENT(4HPLAN.1.2.3.3002700.)	216	AA
	INPUT	AQPRNT =YES	217	AA
	PROG	*	-0	
	PROG	C******************* ORBIT GENERATION STARTS HERE ****************	-0	
	INPUT	CORBGEN CIRP,0.,180.,2,DI	218	AA
	PROG	*	-0	
	PROG	STEP 10000 *	- 0	
	PROG	TRUEAN = 0.	-0	
	PROG	TRUANF = 180.000 +	-0	
	PROG	TRUANI = 0.	-0	
	PROG .	IAI = 0 *	-0	
	PROG	IAS = 0	-0	
	PROG	PLTYPE = 6HPLSAVE *	-0	
	PROG	CALL DICOMP(0,0,0)	-0	
	PROG	L DICAL *	-0	
	PROG	NSPFF = 10000 **	-0	
	PROG	PLTYPE = 6HPLREAD *	-0	
	PROG PROG	CALL AQDATA(IAI,IAS,0,0,0) +	-0 -0	
		C AQCAL *	-0	
	PROG PROG	STEP 10001 *	-0	
	PROG	TRUEAN = 90.000 *	-0 -0	
	FRUG	CALL DICOMP(0.0,10000)	-0	

	· · · · · · · · · · · · · · · · · · ·	-0	
PROG	L DICAL *	-0	
PROG	CALL AQDATA(IAI,IAS,0,0,0)	-0	
PROG	C AQCAL .	-0	
PROG	STEP 10002	-0	
	TRUEAN = 180.000	-0	
PROG	CALL DICOMP(0,0,10000)	-0	
PROG	L DICAL *	_	
PROG	CALL AQDATA(IAI, IAS, 0, 0, 0)	-0	
PROG		-0	
PROG	C AQCAL *	-0	
PROG	STEP 10003	-0	
PROG	II (SHADINE I I I I I	-0	
PROG	TRUEAN = SHADIN-0.1	-0	
PROG	IF(TRUEAN.LT.TRUANI.OR.	-0	
	1 TRUEAN.GT.TRUANF) GO TO 90000	-0	
PROG	CALL DICOMP(0,4HZERO,10000)	-0	
PROG		_	
PROG	CALL AQDATA(IAI,IAS,0,0,0)	<u>o</u>	
PROG		- <u>o</u>	
PROG	C AQCAL	-0	
PROG	90000 CONTINUE *	-0	
PROG	STEP 10004	-0	
PROG	TRUEAN = SHADIN+0.1	-0	
PROG	IF(TRUEAN.LT.TRUANI.OR.	-0	
	1 TRUEAN.GT.TRUANF) GD TO 90100	-0	
PROG	CALL DICOMP(0,0,10000)	-0	
PROG		-0	
PROG	CALL AQDATA(IAI,IAS,0,0,0) *		
PROG		-0	
PROG	C AQCAL	-0	
PROG	90100 CONTINUE - *	-0	
PROG PROG	STEP 10005 *	-0	
l penc	TRUEAN = SHAOUT+0.1	-0	
10	IF(TRUEAN.LT.TRUANI.OR.	-0	
	1 TRUEAN.GT.TRUANF) GU 10 90200	-0	
- FROG	CALL DICOMP(0,4HZERO,10000)	-o	
PROG		- 0	
PRÖG	CALL AQDATA(IAI,IAS,0,0,0)		
PROG		-0	
PROG	C AQCAL	-0	
PROG	90200 CONTINUE *	-0	
PROG	STEP 10006 *	-0	
	TRUEAN = SHADUT-0.1	-0	
PROG	TRUEAN = SHAOUT-0.1	+0	
PROG	IF(TRUEAN.LT.TRUANI.OR.	-o	
	1 TRUEAN.GT.TRUANF) GO TO 90300	-o	
PROG	CALL DICOMP(0,0,10000)	-0	
PROG		-0	
PROG	CALL AQDATA(IAI,IAS,0,0,0)		
PROG		-0	
PROG	C AQCAL _ *	-0	
PROG	90300 CONTINUE *	-0	
PROG	90400 CONTINUE	-0	
PROG		-0	
	C ************************************	-ò	
PROG	G C C C C C C C C C C C C C C C C C C C	219	AA
PROG	_		AA
INPUT	C CCALCULATE INCIDENT FLUXES PLUS SPECULAR REFLECTIONS.	220	AA
INPUT		221	ÄÄ
INPUT	C	222	
INPUT	CALL RSTOFF	223	AA
INPUT	STEP 10010	224	AA
INPUT	CALL DRDATA (10000,0)	225	AA
	AQPRNT =YES	226	AA
INPUT		227	AA
INPUT	CALL AQDATA(0,0,0,0)		AA
INPUT		228	ÄÄ
INPUT	L AQCAL	229	
INPUT	C C C C C C C C C C C C C C C C C C C	230	AA
INPUT	STEP 10011		
=			

INPUT		CALL DRDATA(10001,0)	231	AA
INPUT	L	DRCAL	232	AA
INPUT		CALL AQDATA(0,0,0,0,0)	233	AA
INPUT	Ł	AQCAL	234	AA
INPUT	Ċ		235	AA
INPUT	STEP	10012	236	AA
INPUT		CALL DRDATA(10002,0)	237	AA
INPUT	t	DRCAL	238	AA
INPUT	-	CALL AQDATA(0,0,0,0)	239	ÄÄ
INPUT	1	AQCAL	240	ÃÃ
INPUT	č	UACUF.	241	ÄÄ
INPUT	STEP	10013	242	AA
INPUT	3167			
INPUT		CALL DRDATA(10003,0)	243	AA
	L	DRCAL	244	AA
INPUT		CALL AQDATA(0,0,0,0)	245	AA
INPUT	L	AQCAL	246	AA
INPUT	C		247	AA
INPUT	STEP	10014	248	AA
INPUT		CALL DRDATA(10004,0)	249	AA
INPUT .	L	DRCAL	250	AA
INPUT		CALL AQDATA(0,0,0,0,0)	251	AA
INPUT	Ļ	AQCAL	252	AA
INPUT	С		253	AA
INPUT		CALL QODATA(3HALL,0,0,0,0,0,0)	254	AA
INPUT	L	QOCAL	255	AA
INPUT	END OF		256	AA

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

MODEL = SAMPLE PROCESSOR CORE ALLOCATION

THE FOLLOWING IS THE PROCESSOR CORE ALLOCATION FOR THOSE SEGMENTS WHICH WILL BE LOADED IN THIS EXECUTION (APPROX.) ...

OCTAL/DECIMAL
TRASYS (0) SEGMENT
GRAY BODY DYNAMIC COMMON
GRAY BODY MINIMUM - MAXIMUM CORE
++CAUTION 2++ THE FFPROG SEGMENT APPEARS TO BE TOO LONG FOR AMOUNT OF CORE (075000B) AVAILABLE
++CAUTION 3++ THE DIPROG SEGMENT APPEARS TO BE TOO LONG FOR AMOUNT OF CORE (075000B) AVAILABLE
++CAUTION 4++ THE RBPROG SEGMENT APPEARS TO BE TOO LONG FOR AMOUNT OF CORE (075000B) AVAILABLE
MINIMUM CORE NEEDED FOR PROCESSOR EXECUTION 103000/ 34304
MAXIMUM CORE NEEDED FOR PROCESSOR EXECUTION 103000/ 34304
AMOUNT OF CORE THAT WILL BE USED BY PROCESSSOR . 103000/ 34304

DATE 06/01/77 TIME 17.56.38. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE VERSION

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MODEL = SAMPLE WRAP UP OF THE PRE-PROCESSOR SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

CAUTION MESSAGE(S) OCCUR FOLLOWING THE FIRST 100 OR LESS EDIT SEQUENCE NUMBER(S) LISTED BELOW ... 256

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

PRE-PROCESSOR ACCOUNTING INFORMATION	CP+SEC	PP-SEC	DYM-STORAGE
SOURCE EDITING	.800	3	515
DOCUMENTATION DATA PRE-PROCESSING	0.	0	0
DOCUMENTATION DATA PRE-PROCESSING ******	.012	Ô	266
QUANTITIES DATA PRE-PROCESSING	0.	ŏ	0
ARRAY DATA PRE-PROCESSING	1.152	3	64
SURFACE DATA PRE-PROCESSING (PASS 1)		3	1141
SURFACE DATA PRE-PROCESSING (PASS 2)	.223	3	186
BCS DATA PRE-PROCESSING	.121	1	1036
FORM FACTOR DATA PRE-PROCESSING	.521	2	1030
SHADOW DATA PRE-PROCESSING	٥.	Ō	0
FLUX DATA PRE-PROCESSING	٥.	0	0
CORRESPONDENCE DATA PRE-PROCESSING	.180	1	101
OPERATIONS DATA PRE-PROCESSING	3.700	4	884
SUBROUTINE DATA PRE-PROCESSING	.251	1	0
SEQUENTIAL TAPE INITIATION	.030	0	0

TOTAL CP TIME FOR PRE-PROCESSOR 8.232 DECIMAL SECONDS OR 000011 OCTAL SECONDS

MINIMUM DYNAMIC STORAGE NEEDED BY PRE-PROCESSOR .. 1141 DECIMAL WORDS

DYNAMIC STORAGE AVAILABLE TO PRE-PROCESSOR 3384 DECIMAL WORDS

MINIMUM CORE NEEDED FOR PRE-PROCESSOR EXECUTION .. 071000 OCTAL WORDS

NUMBER OF CAUTION MESSAGES .. 4

NORMAL TERMINATION BY PRE-PROCESSOR

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NASA/MARTIN MARIETTA THERMAL RADIATION ANALYSIS SYSTEM CDC6500/SCOPE 3.4

	RRRRRRRR RRRRRRRRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR RRR	AAAAAAA AAAAAAAAA AAA AAA AAA AAA AAA AAA AAA AAA AAA AAA	\$	TRASYS 11 YYYY YYYY YYY YYY YYY YYY YYY YYY YYYYYY	\$
P R E - P R O C E	SSOR EXECU	TION			

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 06/01/77 TIME 17.57.35. SAMPLE CASE 5 - FFCAL/RECAL/GBCAL/RKCAL/ORECEN/DRCAL/AQCAL/QCCAL MODEL=SAMPLE CONFIG=SAMPLE STEP=-1 PROCESSING OPERATIONS DATA THE OPERATIONS DATA SEGMENT USES ABOUT 042100 OCTAL WORDS OF CORE STORAGE

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DATE 06/01/77 TIME 17.57.36. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC650U/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE5 STEP=-1 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL PROCESSING OPERATIONS DATA

NODE	BCS	AREA	ALPH	EMISS	SURF. TYPE	ACTIVE	COMMENTS
1	BOXINR	1.00000	.900	.900	RECTANGLE	воттом	INNER RIGHT FRONT
2	BOXINR	1.00000	.900	.900	RECTANGLE	BOTTOM	INNER RIGHT SIDE
3	BOXINR	1.00000	.90 0	.900	RECTANGLE	TOP	INNER RIGHT BACK
4	BOXINR	1.00000	.900	.900	RECTANGLE	TOP	INNER RIGHT BOTTOM
11	BOXINL	1.00000	.90 0	.900	RECTANGLE	BOTTOM	INNER RIGHT FRONT
12	BOXINL	1.00000	.90 0	.900	RECTANGLE	BOTTOM	INNER RIGHT SIDE
13	BOXINL	1.00000	.90 0	.900	RECTANGLE	TOP	INNER RIGHT BACK
14	BOXINL	1.00000	. 90 0	.900	RECTANGLE	TOP	INNER RIGHT BOTTOM
200	LIDSP	2.00000	.100	.100	RECTANGLE	BOTTOM	SPECULAR LID
21	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
22	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
23	BOXOUT	1.04040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
24	BOXOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
25	BOXOUT	1.04040	.200	.900	RECTANGLE	TOP	OUTER SURFACES
26	LIDOUT	2.06040	.200	.900	RECTANGLE	TOP	OUTER SURFACE OF LID

NODE, AREA, AND PROPERTIES ARRAYS HAVE BEEN WRITTEN ON THE -RSO- TAPE BY -BUILDC- (ACCESS NUMBER= 1)

ADJUSTING FIELD LENGTH TO 100200 FOR THE FF SEGMENT

DATE 06/01/77 TIME 17.57.38. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=-1 FORM FACTOR CALCULATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

FORM FACTORS AND COMBINED FORM FACTORS - USER INPUT AND DEFAULT. PARAMETERS

VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
FFACC	.0500	.0500	ORIENTATION ACCURACY PARAMETER	N/A
FFACCS	.1000	.1000	SHADOWING ACCURACY PARAMETER	N/A
FFMIN	1.CE-06	1.0E-06	PARAMETER TO ELIMINATE SMALL FORM FACTORS	N/A
FFNOSH	SHAD	SHAD	OVER RIDE SHADOWING PARAMETER	(SHAD, NOSH)
+FFPNCH	NO	NO	PARAMETER TO PUNCH FORM FACTORS	(YES,NO)
FFPRNT	YES	YES	FLAG FOR COMPREHENSIVE FF AND CM PRINT	(YES,NO,FF,CM,RB)
FFRATL	15.0	15.0	RATIO FOR USING SUB-NODE TECHNIQUE	N/A
FFCMB	CORR	CORR	FLAG FOR COMBINING FORM FACTORS	(YES,NO,AUTO,CORR)

^{+ -}FFPNCH WILL DEFAULT TO -YES- ON CALCULATED VALUES IF THE -RSO- FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

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DATE 06/01/77 TIME 17.57.39.

200

RSI

.133520

.066760

.133520

.066760

.133520 1.000000 1.000000

0.

UN

MODEL=SAMPLE CONFIG=CASE5 STEP=-1 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL FORM FACTOR CALCULATION LINK. NODE AREA ALPH EMISS 1.00000 .900 .900 1.00000 .900 .900 1.00000 .900 .900 1.00000 .900 .900 11 1.00000 .900 .900 12 1.00000 .900 .900 13 1.00000 .900 .900 14 1.00000 .900 .900 200 2.00000 .100 .100 21 2.06040 .900 .200 2.06040 .200 .900 23 1.04040 .200 .900 24 2.06040 .200 .900 25 1.04040 .200 .900 2.06040 .200 .900 NUMBER OF NODES = 15 NUMBER OF SURFACES = 15 (* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED) (R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA) (UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT) (9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT) NODE I NODE J COMPUTATION FIR(I,J) FIR(J,I) FSOL(J,I) FF(I,J) SHAD.IR SHAD.SOL FSOL(I,J) CP TIME NEI NEJ W/SHAD W/SHAD W/SHAD W/SHAD WO/SHAD FACTOR FACTOR (SEC) .214256 .214256 RSI .214256 .214256 .214256 1.000000 1.000000 Ō. 0 UN 3 .203695 .203695 1.000000 RSI .203695 .203695 .203695 1.000000 0. UN RSI .214256 .214256 .214256 .214256 .214256 1.000000 1.000000 0. 0 UN 12 RSI .033882 .033882 .033882 .033882 .033882 1.000000 1.000000 0. 0 UN 13 RSI .086031 .086031 .086031 .086031 .086031 1.000000 1.000000 0. 0 UN 14 RSI .039182 .039182 .039182 .039182 .039182 1.000000 1.000000 ο. 0 UN 200 RSI .197480 .098740 .197480 .098740 .197480 1.000000 1.000000 UN FFSUM = .9888 ROW CP TIME = .071 3 RSI .214256 .214256 .214256 .214256 .214256 1.000000 1.000000 0. UN 4 RSI .214256 .214256 .214256 .214256 .214256 1.000000 1.000000 0. 0 UN RSI .033882 11 .033882 .033882 .033882 .033882 1.000000 1.000000 0. 0 UN RSI .069571 .069571 .069571 .069571 .069571 1.000000 1.000000 0 UN 0. 13 RSI .033882 .033882 .033882 .033882 .033882 1.000000 1.000000 0. 0 UN 14 RSI .033882 .033882 .033882 .033882 .033882 1.000000 1.000000 ٥. UN

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE5 STEP==1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUSE OF RSI, RTI, OR CARD INPUT)
(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

		(9.999999	-INDICATE	S DIAVIADAIA	DATA VALUE	DECAGGE G.			•					
NODE	1	NODE J CO	MPUTATION	FIR(I,J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)			
	2	FFSUM =	.9475	ROW CP T	IME =	.082								
	3 3 3 3 3 3	11 R 12 R 14 R	SI SI SI SI SI SI SI	.214256 .086031 .033882 .039182 .061115 ROW CP T	.214256 .086031 .033882 .039182 .030557	.214256 .086031 .033882 .039182 .061115	.214256 .086031 .033882 .039182 .030557	.086031 .033882 .039182	1.000000 1.000000 1.000000 1.000000	1.000000 1.000000 1.000000 1.000000	0. 0. 0. 0.	0 0 0	0 0 0	UN UN UN UN
H-2	3 44444	11 R 12 R 13 R	SI SI SI SI .9212	.039182 .033882 .039182 .166171 ROW CP T	.039182 .033882 .039182 .083086	.039182 .033882 .039182 .166171	.039182 .033882 .039182 .083086	.033882	1.000000 1.000000 1.000000 1.000000	1.00000 1.00000 1.00000 1.00000	0. 0. 0.	0 0 0	0 0 0	UN UN UN UN
	11 11 11 11	12 R 13 R 14 R	SI SI SI SI SI	.214256 .203695 .214256 .197480 ROW CP T	.214256 .203695 .214256 .098740	.214256 .203695 .214256 .197480	.214256 .203695 .214256 .098740	.203695	1.000000 1.000000 1.000000 1.000000	1.000000 1.000000 1.000000 1.000000	0. 0. 0.	0 0 0	0 0 0	UN UN UN
	12 12 12 12	14' F	RSI RSI RSI .9475	.214256 .214256 .133520 ROW CP 1	.214256 .214256 .066760 TIME =	.214256 .214256 .133520	.214256 .214256 .066760	.214256	1.000000 1.000000 1.000000	1.00000 1.00000 1.00000	0. 0. 0.	0 0 0	0 0 0	UN UN UN
	13 13		RSI	.214256 .061115	.214256 .030557	.214256 .061115	.214256 .030557	.214256	1.000000	1.000000	0. 0.	0	0	UN

FFSUM =

FFSUM =

DATE 06/01/77 TIME 17.57.40. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE5 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

ROW CP TIME =

ROW CP TIME =

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

.003

.004

	(UN-INDICATES UNKNO (9.999999 -INDICATE	OWN CALCULATION MODE S UNKNOWN DATA VALUE	BECAUES OF BECAUSE OF	RSI, RTI, C F INSUFFICIE	OR CARD IN	NPUT) INPUT)					
NODE 1	NODE J COMPUTATION	FIR(I,J) FIR(J,I) W/SHAD W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)			
13	FFSUM = .8524	ROW CP TIME =	.047								
14 14		.166171 .083086 ROW CP TIME =	.166171 .011	.083086	.166171	1.000000	1.000000	o.	0	0 U	IN
200	FFSUM = .5583	ROW CP TIME =	.005								
21	FFSUM = 0.	ROW CP TIME =	.00à								
22	FFSUM = 0.	ROW CP TIME =	.003								
23	FFSUM = 0.	ROW CP TIME =	.004								
24	FFSUM ≠ 0.	ROW CP TIME =	.005								

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

DATE 06/01/77 TIME 17.57.42.

MODEL=SAMPLE CONFIG=CASE5 STEP=-1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE 1- FF SUM	NODE 1- FF SUM
19888 138524 24- 0.	29475 149212 25- 0.	38524 2005583 26- 0.	49212 21- 0.	119888 22- 0.	129475 23- 0.

TOTAL TIME FOR FORM FACTOR SEGMENT

.713

TOTAL TIME SINCE START OF RUN

33.754

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 077000 FOR THE RB SEGMENT

DATE 06/01/77 TIME 17.57.43.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=-!
IMAGE FACTOR CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

NODE	AREA	ALPH	EMISS	SPECULAR REFL(SOL)	SPECULAR REFL(IR)
1	1.000E+00	9.000E-01	9.000E-01	0.	0.
2	1.000E+00	9.000E-01	9.000E-01	0.	0.
3	1.000E+00	9.000E-01	9.000E-01	0.	0.
4	1.000E+00	9.000E-01	9.000E-01	0.	0.
11	1.000E+00	9.000E-01	9.000E-01	0.	0.
12	1.000E+00	9.000E-01	9.000E-01	0.	0.
13	1.000E+00	9.000E-01	9.000E-01	0.	0.
14	1.000E+00	9.000E-01	9.000E-01	0.	0.
200	2.000E+00	1.000E-01	1.000E-01	8.000E-01	8.000E-01
21	2.060E+00	2.000E-01	9.000E-01	0.	0.
22	2.060E+00	2.000E-01	9.000E-01	0.	0.
23	1.040E+00	2.000E-01	9.000E-01	0.	0.
24	2.060E+00	2.000E-01	9.000E-01	0.	0.
25	1.040E+00	2.000E-01	9.000E-01	0.	0.
26	2.060E+00	2.000E-01	9.000E-01	0.	0.

NUMBER OF NODES = 15 NUMBER OF SURFACES = 15

MODEL=SAMPLE CONFIG=CASE5 STEP=-1 IMAGE FACTOR CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AOCAL/OCCAL

RESTARTING -RBCAL - DATA FOR CONFIGURATION -CASES - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1ES

(* INDICATES NODE PAIR HAS BEEN SUBDIVIDED) (R INDICATES FF CALCULATED FROM J TO 1)

NODE	1	NODE J	COMPUTATION	IFE(I,J) W/SHAD	IFE(J,I) W/SHAD	IFA(I,J) W/SHAD	CP TIME (SEC)
н-300	1 1 1 1 1 1 1 1	1 2 3 4 11 12 13 14 200	RSI	.026827 .228160 .203695 .223969 .018586 .050408 .086031 .046239 .197480	.026827 .228160 .203695 .223969 .018586 .050408 .086031 .046239 .098740	.026827 .228160 .203695 .223969 .018586 .050408 .086031 .046239 .197480	.021 .025 .030 .034 .038 .042 .046 .050
	222222	ROW 3 4 11 12 13 14 200	RSI RSI RSI RSI RSI RSI	.214256 .215642 .050408 .078381 .033882 .035943 .133520	.214256 .215642 .050408 .078381 .033882 .035943 .066760	.214256 .215642 .050408 .078381 .033882 .035943 .133520	.011 .016 .020 .023 .027 .030
	3 3 3 3 3	ROW 4 11 12 14 200 ROW	RSI RSI RSI RSI RSI RSI RSI CP TIME =	.039 .214256 .086031 .033882 .039182 .061115	.214256 .086031 .033882 .039182 .030557	.214256 .086031 .033882 .039182 .061115	.012 .016 .021 .025
	4 4 4 4	12 13	RSI	.046239 .035943 .039182 .166171	.046239 .035943 .039182 .083086	.046239 .035943 .039182 .166171	.011 .015 .019

DATE 06/01/77 TIME 17.57.44. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=-1 IMAGE FACTOR CALCULATION LINK.

23

ROW CP TIME =

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

(* INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

NODE I	NODE J	COMPUTATION	FE(1,J)	FE(J,I)	FA(I,J)	F (1,J)	SHAD. E	SHAD. A	CP TIME
			W/SHAD	W/SHAD	W/SHAD	WO/SHAD	FACTER	FACTOR	(SEC)

					•		
	4	ROW CP	TIME =	.048	+		
	11 11 11 11	11 12 13 14 200	RSI RSI RSI RSI RSI	.026827 .228160 .203695 .223969	.026827 .228160 .203695 .223969	.026827 .228160 .203695 .223969	.008 .012 .017 .020
	11	_	TIME =	.028	+	1137.400	1024
r.	12 12 12	13 14 200	RSI RSI RSI	.214256 .215642 .133520	.214256 .215642 .066760	.214256 .215642 .133520	.008 .012 .016
H-301	12	ROW CP	TIME =	.021	+		•
	13 13	14 200	RSI RSI	.214256 .061115	.214256 .030557		.010
	13	ROW CP	TIME =	.018	+		
	14	200	RSI	.166171	.083086	.166171	.008
	14	ROW CP	TIME =	.012	+		
	200	ROW CP	TIME =	.010	+		
	21	ROW CP	TIME =	.009	+		
	22	ROW CP	TIME =	.010	+ -		

.008

11

DATE 06/01/77 TIME 17.57.45.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL = SAMPLE CONFIG=CASE5 STEP=-1

SAMPLE CAST 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

IMAGE FACTOR CALCULATION LINK.

(* INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

NODE I NODE J COMPUTATION FE(I,J) FE(J,I) FA(I,J) F (I,J) SHAD. E SHAD. A CP TIME W/SHAD W/SHAD WO/SHAD FACTER FACTOR (SEC)

.030 ROW CP TIME = 24

.011 ROW CP TIME = 25

ROW CP TIME = .011 26

TOTAL CP TIME (SEC) FOR PROBLEM =

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 052500 FOR THE GB SEGMENT

DATE 06/01/77 TIME 17.57.46.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=-1 GRAY BODIES COMPUTATION LINK.

NONE

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

GREY BODIES

VARIABLE CURRENT DEFAULT NAME VALUE

DEFINITION

OPTIONS

GBWBND BOTH

WAVEBAND DEFINITION PARAMETER

(IR, SOL, BOTH)

H-303

RESTARTING -GBSO - DATA FOR CONFIGURATION -CASES - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1ES ON 05/23/77

IR GRAY BODIES STORED FOR CONFIG. CASE5

SOL GRAY BODIES STORED FOR CONFIG. CASES

TOTAL TIME TO COMPUTE GRAY BODIES .56

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 050000 FOR THE RC SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

(TAPE,NO)

(0. TQ 1.)

N/A

N/A

13

MODEL=SAMPLE CONFIG=CASE5 STEP=-1 RADIATION CONDUCTOR GENERATION LINK.

1.00

7.0E-01

.990

1.0

NO

0.7

0.99

0

DATE 06/01/77 TIME 17.57.52.

SAMPLE CASE 5 - FFCAL/RECAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

			RADIATION CONDUCTORS	00***
VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	OPTIONS
RKPNCH RKMIN IRKCN RKSP IRKNSP SIGMA	PUN .0001 1 SPACE 999 1.71E-09	NO 0.0001 1 NO 32767 1.713E-9	PUNCH/NO PUNCH PARAMETER FOR RADKS PARAMETER TO ELIMINATE SMALL RADK S INITIAL RADIATION CONDUCTOR ID NUMBER MNEMONIC FLAG FOR COMPUTATION OF RADKS TO SPACE SPACE NODE ID NUMBER STEFAN-BOLTZMANN CONSTANT	(YES,NO) N/A N/A (SPACE,NO) N/A N/A N/A

AREA MULTIPLYING FACTOR

PARAMETER TO OUTPUT TO BCD TAPE

DECIMAL FRACTION OF LAST RADK SAVED

EFFECTIVE RADIATION NODE (ERN) NUMBER

SIGNIFICANT RADIATION FRACTION

RKAMPF

RKTAPE

RFRAC

RTOL

NERN

DATE 06/01/77 TIME 17.57.52.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=-1 RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

SPECIAL RADIATION NODES

NONE

MESS SPECIAL NODES
PRIMARY SECONDARY

NONE

15

MODEL=SAMPLE CONFIG=CASE5 STEP=-1 RADIATION CONDUCTOR GENERATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

RADIATION CONDUCTOR (RADKS) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

PUNCHED	RADKS	_	1,	1,	2,	1.7130000E-09*	1.9558929E-01
PUNCHED		_	2,	1,	3,	1.7130000E-09*	1.7511242E-01
PUNCHED		-	3,	1,	4,	1.7130000E-09*	1.9219769E-01
PUNCHED	-	_	4.	1,	11,	1.7130000E-09*	2.3833215E-02
PUNCHED		_	5.	1,	12,	1.7130000E-09*	4.8045144E-02
PUNCHED		_	6,	1,	13,	1.7130000E-09*	7.4387137E-02
PUNCHED		_	7,	1,	14,	1.7130000E-09*	4.3588914E-02
PUNCHED		-	8,	1,	200.	1.7130000E-09*	1.8872795E-02
PUNCHED		_	9,	2.	3,	1.7130000E-09*	1.8294539E-01
PUNCHED		_	10,	2,	4,	1.7130000E-09*	1.8486741E-01
PUNCHED		_	11,	2,	11.	1.7130000E-09*	4.8045144E-02
PUNCHED		_	12,	2,	12.	1.7130000E-09*	6.9234692E-02
PUNCHED		_	13,	2,	13,	1.7130000E-09*	3.3476677E-02
PUNCHED		_	14.	2,	14,	1.7130000E-09*	3.5061177E-02
		_	15.	2,	200,	1.7130000E-09*	1.3228189E-02
PUNCHED			16,	3,	4.	1.7130000E-09*	1.8267720E-01
PUNCHED		_	17,	3,	11.	1.7130000E-09*	7.4387137E-02
PUNCHED			18,	3.	12.	1.7130000E-09*	3.3476677E-02
PUNCHED		_		3,	13,	1.7130000E-09*	6.0385245E-03
PUNCHED			19,	3,	14,	1.7130000E-09*	3.6278115E-02
PUNCHED	_	-	20,	3,	200.	1.7130000E-09*	6.7857034E-03
PUNCHED		_	21,	4,	11,	1.7130000E-09*	4.3588914E-02
PUNCHED		-	22,	4,	12,	1.7130000E-09*	3.5061177E-02
PUNCHED		-	23,	4,	13,	1.7130000E-09*	3.6278115E-02
PUNCHED		_	24,	7,	14.	1.7130000E-09*	5.9737999E-03
PUNCHED		_	25,	4,	200.	1.7130000E-09*	1.5984380E-02
PUNCHED		-	26,	4,	12,	1.7130000E-09*	1.9558929E-01
PUNCHED		-	27,	11,		1.7130000E-09*	1.7511242E-01
PUNCHED		-	28,	-11.	13,	1.7130000E-09*	1.9219769E-01
PUNCHED		-	29,	11,	14,	1.7130000E-09*	1.8872795E-02
PUNCHED	RADKS	-	30,	11,	200,	1.71300002-09*	1.8294539E-01
PUNCHED	RADKS		31,	12,	13,	1.7130000E-09*	1.8486741E-01
PUNCHED	RADKS	-	32,	12,	14,	1.7130000E-09*	1.3228189E-02
PUNCHED	RADKS	-	33,	12,	200,		1.8267720E-01
PUNCHED	RADKS	_	34,	13,	14,	1.7130000F-09*	6.7857034E-03
PUNCHED	RADKS	-	35,	13,	200,	1.7130000E-09*	1.5984380E-02
PUNCHED	RADKS	-	36,	14,	200.	1.7130000E-09*	
PUNCHED	RADKS	-	37,	1,	999,	1.7130000E-09*	9.1405142E-02
PUNCHED	RADKS	-	38,	2,	999,	1.7130000E-09*	1.2336413E-01
PUNCHED		-	39,	З,	999,	1.7130000E-09*	1.8981604E-01
PUNCHED		-	40,	4,	999,	1.7130000E-09*	1.8950123E-01
PUNCHED		-	41,	11,	999,	1.7130000E-09+	9.1405142E-02
PUNCHED		_	42,	12,	999,	1.7130000E-09+	1.2336413E-01
PUNCHED		-	43.	13,	999,	1.7130000E-09*	1.8981604E-01
PUNCHED		_	44.	14.	999,	1.7130000E-09*	1.8950123E-01
			· • •				

DATE 06/01/77 TIME 17.57.53.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

AGE

MODEL=SAMPLE CONFIG=CASE5 STEP=-1
RADIATION CONDUCTOR GENERATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

RADIATION CONDUCTOR (RADK) CARDS PUNCHED

AREA UNITS = INPUT UNITS * AMPF, WHERE AMPF = 1.00000

PUNCHED RADKS	-	45,	200,	999,	1.7130000E-09*	9.0067552E-02
PUNCHED RADKS	-	46,	21,	999.	1.7130000E-09*	1.8543600E+00
PUNCHED RADKS	-	47,	22,	999.	1.7130000E-09*	1.8543600E+00
PUNCHED RADKS	-	48,	23,	999,	1.7130000E-09*	9.3636000E-01
PUNCHED RADKS	-	49,	24,	999,	1.7130000E-09*	1.8543600E+00
PUNCHED RADKS	-	50,	25,	999,	1.7130000E-09*	9.3636000E-01
PUNCHED RADKS	-	51,	26,	999.	1.7130000E-09*	1.8543600E+00

TOTAL TIME TO COMPUTE AND CONDENSE RADKS = .61

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		
	SHAD .250 .100 0	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR SHADOWING ACCURACY FACTOR FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)	SHAD, NOSH SOL, PLAN, ALL	SHAD 0.25 0.10 ALL 0 0.0	DINOSH DIACC DIACCS ICALFL NSPFF TRUEAN TIMEST
	Ο.	++++ BASIC ORE	RIT DATA ++++		
н-308	0. 0. 0. 0. 6.08000E+05 6.08000E+05 0. 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0 0.0 0.0 0.0 0.0	ALAN APER OINC HP HA ECC SUNRA SUNDEC STRRA STRDEC
	300.000 270.000 0. 1 2 3 3.000E+02 3.000E+01 0.	++++ PLANET-ORIENTED, ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE CLOCK, DEGREES SUN LOOK ANGLE CONE, DEGREES PLANET LOOK ANGLE CLOCK, DGREES PLANET LOOK ANGLE CONE, DEGREES PLANET LOOK ANGLE CONE, DEGREES	ORIENTATION DATA ++++	0.0 0.0 0.0 1 2 3 0.0 0.0 0.0	ROTX ROTY ROTZ SUNCL SUNCO PLCL PLCQ
		++++ SPIN D	ATA ++++	·	
	0. 0. 0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS C CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS	CW=POSITIVE)	0.0 0.0 0.0 0.0	CLOCK CONE RATE TIMSP

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 06/01/77 TIME 17.57.54.

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MODEL=SAMPLE CONFIG=CASE5 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

+++++++ NSTEP NO = 10000

		. +++-	+ COMPUTED (OR INPUT	ORBIT DATA 4	++++	
	VALUE	VARIABLE DESCRIPTION		***	VALUE	VARIABLE DESCRIPTION	
	60.000 0.	SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGREES	S		o. o.	SUN CIGMA ANGLE, DEGREES Star Cigmas Angle, Degrees	
			++++ PLANET	EARTH	DATA ++4	++	
	VALUE	DESCRIPTION	NAME	***	VALUE .	DESCRIPTION	NAME
п - 3r	.300 2.0 9000E+07 1.4 6792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		.50732E+01 .50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	WDS WSS
5	4.17312E+08	PLANET GRAV CONSTANT	GRAV	4	.29000E+02	SOLAR CONSTANT AT PSD	SOL

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DATE 06/01/77 TIME 17.57.54.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE5 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCCAL

RESTARTING -DICAL - DATA FOR CONFIGURATION -CASES - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1ES ON 05/23/77

DATE 06/01/77 TIME 17.57.58.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6507/SCOPE 3.4

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SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

MODEL=SAMPLE CONFIG=CASE5 STEP=10000 DIRECT IRRADIATION CALCULATION LINK.

RADIATION CALCULATION LINK.

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO. 10000 · TRUE ANOMALY = 0. TIME = .00000 +++++ IN THE SUN +++++

DIRECT	INCID. FLUX	DIRECT	ABS. FLUX
ALBEDO	PLANETARY	ALBEDO	PLANETARY
0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
2.154E+01	1.436E+01	2.154E+00	1.436E+00
1.101E+02	7.423E+01	2.202E+01	6.681E+01
4.024E+01	2.683E+01	8.048E+00	2.414E+01
4.005E+01	2.645E+01	8.010E+00	2.380E+01
3.915E+01	2.678E+01	7.829E+00	2.411E+01
3.823E+01	2.643E+01	7.646E+00	2.379E+01
6.592E+00	4.570E+00	1.318E+00	4.113E+00
	ALBEDO 0. 0. 0. 0. 0. 0. 0. 2.154E+01 1.101E+02 4.024E+01 4.005E+01 3.915E+01 3.823E+01	ALBEDO PLANETARY O. O. O. 2.154E+01 1.436E+01 1.101E+02 7.423E+01 4.024E+01 2.683E+01 4.005E+01 2.645E+01 3.915E+01 2.678E+01 3.823E+01 2.643E+01	ALBEDO PLANETARY ALBEDO O.

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

TC-H

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SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

MODEL=SAMPLE CONFIG=CASE5 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME					
		++++ BASIC CONTROL	PARAMETERS ++++							
	SHAD .250 .100	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR SHADOWING ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS ICALFL					
	10000	FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA TRUE ANOMALY ANGLE, DEGREES Initial time (at Periapsis)	SOL, PLAN, ALL	ALL 0 0.0 0.0	NSPFF TRUEAN TIMEST					
		++++ BASIC ORB	IT DATA ++++							
	0. 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES		0.0 0.0 0.0	ALAN APER DINC HP					
н-312	6.08000E+05 6.08000E+05 0.	ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY SUN RA ANGLE, DEGREES		0.0 0.0 0.0 0.0	HA ECC SUNRA					
	0. 0. 0.	SUN DEC ANGLE, DEGREES, REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0 0.0 0.0	SUNDEC STRRA STRDEC					
	++++ PLANET-ORIENTED, ORIENTATION DATA ++++									
	300.000 270.000 0.	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS		0.0	ROTX ROTY ROTZ					
	1 2 3 3.600E+02 9.000E+01 0.	ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		1 2 3 0.0 0.0 0.0 0.0	SUNCL SUNCG PLCL PLCG					
	•	++++ SPIN DA	TA ++++							
	0. 0. 0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CC CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE	W=POSITIVE)	0.0 0.0 0.0	CLOCK CONE RATE TIMSP					
	0.	TIME SPIN BEGINS		•••						

DATE 06/01/77 TIME 17.58.00.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

++++++ NSTEP NO = 10001

•	++++	COMPUTED (OR INPUT	ORBIT DATA +	+++	
VALUE	VARIABLE DESCRIPTION		***	VALUE	VARIABLE DESCRIPTION	
60.000 0.	SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGREES			0. 0.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREES	
	++	+++ PLANET	EARTH	DATA +++	+	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300 2.0 9000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		50732E+01 50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	W DS W SS
4.17312E+08	PLANET GRAV CONSTANT	GRAV	4.	29000E+02	SOLAR CONSTANT AT PSD	SOL

DATE 06/01/77 TIME 17.58.00. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC650J/SCOPE 3.4 PAGE 2

MODEL=SAMPLE CONFIG=CASE5 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/OREGEN/DRCAL/AQCAL/QDCAL

RESTARTING -DICAL - DATA FOR CONFIGURATION -CASES - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1ES ON 05/23/77

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DATE 06/01/77 TIME 17.58.01. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL * SAMPLE CONFIG=CASE5 STEP=10001 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO. 10001 · TRUE ANOMALY * 90.00000 TIME * .36701 ++++ IN THE SUN ++++

NODE NUMBER	DIRECT	INCID. FLUX PLANETARY	DIRECT	ABS. FLUX PLANETARY
1	0.	0.	0.	0.
2	0.	0.	0.	0.
3	0.	0.	0.	0.
4	0.	0.	0.	0.
11	0.	0.	0.	0.
12	0.	0.	0.	0.
13	0.	0.	0.	0.
14	0.	0.	0.	0.
200	1.200E+00	1.436E+01	1.200E-01	1.436E+00
21	1.430E+00	7.423E+01	2.859E-01	6.681E+01
22	2.061E+00	2.683E+01	4.123E-01	2.414E+01
23	6.423E-01	2.645E+01	1.285E-01	2.380E+01
24	0.	2.678E+01	0.	2.411E+01
2 5	6.342E-01	2.643E+01	1.268E-01	2.379E+01
2 6	0.	4.570E+00	0.	4.113E+00

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

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MODEL*SAMPLE CONFIG=CASE5 STEP=10002 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		
	SHAD .250	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR SHADOWING ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS
	.100	FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA	SOL, PLAN, ALL	ALL O	ICALFL NSPFF
	10000 180.000 0.	TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0 0.0	TRUEAN TIMEST
		++++ BASIC ORB	IT DATA ++++		
-	0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES		0.0 0.0	ALAN APER
H.	0. 0. 6.08000E+05	ORBIT INCLINATION, DEGREES ORBIT ALTITUDE AT PERIAPSIS		0.0 0.0	DINC HP
316	6.08000E+05 0.	ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY		0.0 0.0	HA ECC Sunra
	0. 0.	SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES,		0.0 0.0 0.0	SUNDEC STRRA
	0.	REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0	STRDEC
		++++ PLANET-ORIENTED.	ORIENTATION DATA ++++		
	300.000 270.000 0.	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS		0.0 0.0 0.0	ROTX ROTY ROT Z
	1 2 3 3.000E+02	ROTATION ORDER IROTX, IROTY, IROTZ SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES		1 2 3 0.0 0.0	SUNCL SUNCO
	1.500E+02 0. 0.	PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES	•	0.0 0.0	PLCL PLCG
		++++ SPIN DA	TA ++++		
	0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CC CONE ANGLE, DEGREES	W=POSITIVE)	0.0 0.0	CLOCK
-	0. 0. 0.	ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS		0.0 0.0	RATE TIMSP

DATE 06/01/77 TIME 17.58.03.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC650J/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10002 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

++++++ NSTEP NO = 10002

	++	++ COMPUTED	OR INPU	T ORBIT DATA	++++	
VALUE	VARIABLE DESCRIPTION		***	VALUE	VARIABLE DESCRIPTION	
60. 0 00 0.	SUN BETA ANGLE, DEGREES STAR BETAS ANGLE, DEGRE			o. o.	SUN CIGMA ANGLE, DEGREES Star Cigmas Angle, Degrees	;
		++++ PLANET	EART	H DATA +++	++	
VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
.300 2. 0 9000E+07 1.46792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	W DS W SS
4.17312E+08	PLANET GRAV CONSTANT	GRAV		4.29000E+02	SOLAR CONSTANT AT PSD	SOL

AGE

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

DATE 06/01/77 TIME 17.58.03.

MODEL=SAMPLE CONFIG=CASE5 STEP=10002 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

RESTARTING -DICAL - DATA FOR CONFIGURATION -CASES - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1ES ON 05/23/77

DATE 06/01/77 TIME 17.58.03. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10002 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QUCAL

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO. 10002 . TRUE ANOMALY . 180.00000 TIME = .73402 ++++ IN THE SHADE ++++

NODE			FLUX	DIRECT ABS. FLUX
NUMBER	ALB	EDO PLANE	TARY ALBE	DO PLANETARY
1	0.	0.	0.	0.
2	0.	0.	0.	0.
3	0.	0.	0.	o.
4	0.	0.	0.	Ö.
11	0.	0.	0.	o.
12	0.	0.	0.	Ö.
13	0.	• 0.	0.	o.
14	0.	0.	0.	o.
200	0.	1.436E	+01 0.	1.436E+00
21	0.	7.423E	+01 0.	6.681E+01
22	0.	2.683E	+01 0.	2.414E+01
2 3	0.	2.645E	+01 0.	2.380E+01
24	0.	2.678E	+01 0.	2.411E+01
2 5	0.	2.643E	+01 0.	2.379E+01
2 6	0.	4.570E	+00 0.	4.113E+00

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

MODEL*SAMPLE CONFIG=CASE5 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT Value	VARIABLE NAME
		++++ BASIC CONTROL	PARAMETERS ++++		,
		SHADOWING OVERRIDE FLAG	SHAD, NOSH	SHAD	DINOSH
	SHAD	PLANETARY ACCURACY FACTOR		0.25	DIACC
	.250	SHADOWING ACCURACY FACTOR		0.10	DIACCS
	.100	FLUX COMPUTATION FLAG	SOL, PLAN, ALL	ALL	ICALFL
	40000	STEP NO. FOR PLANET-ORIENTED DATA		0 -	NSPFF
	10000	TRUE ANDMALY ANGLE, DEGREES	•	0.0	TRUEAN
	105.720 0.	INITIAL TIME (AT PERIAPSIS)		0.0	TIMEST
		++++ BASIC ORB	IT DATA ++++		
		TOTAL AND ADDRESS OF THE PROPERTY OF THE PROPE		0.0	ALAN
	0.	LONGITITUDE OF ASCENDING NODE, DEGREES		0.0	APER
	0.	ARGUMENT OF PERIFOCUS, DEGREES	,	0.0	DINC
н-320	0.	ORBIT INCLINATION, DEGREES		0.0	HP
ယုံ	6.08000E+05	ORBIT ALTITUDE AT PERIAPSIS		0.0	HA
20	6.08000E+05	ORBIT ALTITUDE AT APOAPSIS		0.0	ECC
•	0.	ORBIT ECCENTRICITY		0.0	SUNRA
	0.	SUN RA ANGLE, DEGREES		0.0	SUNDEC
	0.	SUN DEC ANGLE, DEGREES,		0.0	STRRA
	0.	REFERENCE STAR RA ANGLE, DEGREES		0.0	STRDEC
	0.	REFERENCE STAR DEC ANGLE, DEGREES		•••	
		++++ PLANET-ORIENTED,	ORIENTATION DATA ++++		
		WALLS IN OCC		0.0	ROTX
	300.000	ROTATION ABOUT VCS X-AXIS TO CCS		0.0	ROTY
	270.000	ROTATION ABOUT VCS Y-AXIS TO CCS		0.0	ROTZ
	0.	ROTATION ABOUT VCS Z-AXIS TO CCS		1 2 3	
	1 2 3	ROTATION ORDER IROTX, IROTY, IROTZ		0.0	SUNCL
	3.590E+02	SUN LOOK ANGLE - CLOCK, DEGREES		0.0	SUNCO
	1.036E+02	SUN LOOK ANGLE - CONE, DEGREES	•	0.0	PLCL
	o.	PLANET LOOK ANGLE - CLOCK, DGREES		0.0	PLCG
	0.	PLANET LOOK ANGLE - CONE, DEGREES			
		++++ SPIN DA	TA ++++		
	_	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CC	W=POSITIVE)	0.0	CLOCK
	0.	CLUCK ANGLE, DEGREES (ABOUT CCS 2 AKIS CO	,,	0.0	CONE
	Ō.	CONE ANGLE, DEGREES		0.0	RATE
	o.	ROTATION RATE- CCW POSITIVE		0.0	TIMSP
	0.	TIME SPIN BEGINS		•••	

DATE 06/01/77 TIME 17.58.05. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

+++++++ NSTEP NO = 10003

++++ COMPUTED OR INPUT ORBIT DATA ++++

	VALUE	VARIABLE DESCRIPTION	ON	***	VALUE	VARIABLE DESCRIPTION	
	60.000 0.	SUN BETA ANGLE, DEGREE STAR BETAS ANGLE, DEGR			o. o.	SUN CIGMA ANGLE, DEGREES STAR CIGMAS ANGLE, DEGREES	
			++++ PLANET	EARTH	i DATA +++	+	
	VALUE	DESCRIPTION	NAME	***	VALUE	DESCRIPTION	NAME
H-32	.300 2.0 9000E+07 1.4 6792E+00	PLANET ALBEDO PLANET RADIUS ORBIT PERIOD	PALB PRAD PERIOD		7.50732E+01 7.50732E+01	PLANET DS EMISS POWER PLANET SS EMISS POWER	W DS W SS
21	4.17312E+08	PLANET GRAV CONSTANT	GRAV	ž	.29000E+02	SOLAR CONSTANT AT PSD	SOL

DATE 06/01/77 TIME 17.58.05. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE 31

MODEL=SAMPLE CONFIG=CASE5 STEP=10003 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

* RESTARTING -DICAL - DATA FOR CONFIGURATION -CASES - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1ES ON 05/23/77

DATE 06/01/77 TIME 17.58.05.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10003 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASÉ 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO. 10003 · TRUE ANOMALY = 105.71977 TIME = .43111
++++ IN THE SUN ++++

NODE NUMBER	DIRECT	INCID. FLUX-	DIREC	T ABS. FLUX PLANETARY
1	0.	0.	0.	0.
2	0.	0.	0.	0.
3	Ŏ.	0.	0.	0.
4	0.	0.	0.	Ŏ.
11	0.	0.	0.	o.
12	0.	0.	0.	O.
13	0.	0.	0.	Ö.
14	0.	0.	0.	O.
200	0.	1.436E+01	0.	1.436E+00
21	0.	7.423E+01	0.	6.681E+01
22	0.	2.683E+01	0.	2.414E+01
23	0.	2.645E+01	0.	2.380E+01
2 4	0.	2.678E+01	0.	2.411E+01
2 5	0.	2.643E+01	0.	2.379E+01
2 6	0.	4.570E+00	0.	4.113E+00

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 103000 FOR THE DI SEGMENT

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MODEL=SAMPLE CONFIG=CASE5 STEP=10004 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

	INPUT VALUE	DESCRIPTION	USER OPTIONS	DEFAULT VALUE	VARIABLE NAME				
	++++ BASIC CONTROL PARAMETERS ++++								
	SHAD .250	SHADOWING OVERRIDE FLAG PLANETARY ACCURACY FACTOR	SHAD, NOSH	SHAD 0.25 0.10	DINOSH DIACC DIACCS				
	.100	SHADOWING ACCURACY FACTOR FLUX COMPUTATION FLAG STEP NO. FOR PLANET-ORIENTED DATA	SOL, PLAN, ALL	ALL O	ICALFL NSPFF				
	10000 105.920 0.	TRUE ANOMALY ANGLE, DEGREES INITIAL TIME (AT PERIAPSIS)		0.0 0.0	TRUEAN TIMEST				
	++++ BASIC ORBIT DATA ++++								
	0. 0. 0.	LONGITITUDE OF ASCENDING NODE, DEGREES ARGUMENT OF PERIFOCUS, DEGREES ORBIT INCLINATION, DEGREES		0.0 0.0 0.0 0.0	ALAN APER OINC .HP				
н-324	6.08000E+05 6.08000E+05 0.	ORBIT ALTITUDE AT PERIAPSIS ORBIT ALTITUDE AT APOAPSIS ORBIT ECCENTRICITY		0.0 0.0 0.0	HA ECC SUNRA				
24	0. 0. 0.	SUN RA ANGLE, DEGREES SUN DEC ANGLE, DEGREES. REFERENCE STAR RA ANGLE, DEGREES REFERENCE STAR DEC ANGLE, DEGREES		0.0	SUNDEC STRRA STRDEC				
	++++ PLANET-ORIENTED, ORIENTATION DATA ++++								
	300.000 270.000 0. 1 2 3	ROTATION ABOUT VCS X-AXIS TO CCS ROTATION ABOUT VCS Y-AXIS TO CCS ROTATION ABOUT VCS Z-AXIS TO CCS ROTATION ORDER IROTX, IROTY, IROTZ		0.0 0.0 0.0 1 2 3 0.0	ROTX ROTY ROTZ SUNCL				
	3.590E+02 1.037E+02 0.	SUN LOOK ANGLE - CLOCK, DEGREES SUN LOOK ANGLE - CONE, DEGREES PLANET LOOK ANGLE - CLOCK, DGREES PLANET LOOK ANGLE - CONE, DEGREES		0.0 0.0 0.0	SUNCO PLCL PLCO				
	++++ SPIN DATA ++++								
	0. 0. 0.	CLOCK ANGLE, DEGREES (ABOUT CCS Z-AXIS CO CONE ANGLE, DEGREES ROTATION RATE- CCW POSITIVE TIME SPIN BEGINS	W=POSITIVE)	0.0 0.0 0.0 0.0	CLOCK CONE RATE TIMSP				

DATE 06/01/77 TIME 17.58.08.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE5 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

+++++++ NSTEP NO = 10004

++++ COMPUTED OR INPUT ORBIT DATA ++++

	VALUE	VARIABLE DESCRIPTION	N	***	VALUE	VARIABLE DESCRIPTION	N
60.000 0.		SUN BETA ANGLE, DEGREES Star Betas angle, Degrees			o. o.	SUN CIGMA ANGLE, DEGREES Star Cigmas Angle, Degrees	
	VALUE	DESCRIPTION	++++ PLANET	"EAR1	TH DATA +++	,	
			–	•	VALUE	DESCRIPTION	NAME
	.300	PLANET ALBEDO	PALB		7.50732E+01	PLANET DS EMISS POWER	WDS
	2.09000E+07	PLANET RADIUS	PRAD		7.50732E+01	PLANET SS EMISS POWER	wss
3	1.46792E+00	ORBIT PERIOD	PERIOD			. I CO EMISS FORER	# 33
٥	4.17312E+08	PLANET GRAV CONSTANT	GRAV		4.29000E+02	SOLAR CONSTANT AT PSD	SOL

DATE 06/01/77 TIME 17.58.08. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE

= 10004 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

35

MODEL=SAMPLE CONFIG=CASE5 STEP=10004 DIRECT IRRADIATION CALCULATION LINK.

RESTARTING -DICAL - DATA FOR CONFIGURATION -CASES - FROM UNIT -RSI- INITIATED BY JOB NO. RGEX1ES ON 05/23/77

DATE 06/01/77 TIME 17.58.08.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10004 DIRECT IRRADIATION CALCULATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO. 10004 . TRUE ANOMALY = 105.91977 TIME = .43193 ++++ IN THE SHADE ++++

NODE			. FLUX	DIRECT ABS. FLUX
NUMBER	AL	BEDO PLAN	ETARY AL	BEDO PLANETARY
1	0.	0.	0.	0.
2	0.	Ο.	0.	0.
3	0.	0.	0.	0.
4	0.	0.	0.	0.
11	0.	0.	0.	0.
12	0.	0.	0.	0.
13	0.	0.	0.	0.
14	0.	0.	0.	0.
200	0.	1.436	E+01 0.	1.436E+00
21	0.	7.423	E+01 0.	6.681E+01
22	0.	2.683	E+01 0.	2.414E+01
2 3	0.	2.645	E+01 0.	2.380E+01
24	0.	2.678	E+01 0.	2.411E+01
25	0.	2.643	E+01 0.	2.379E+01
26	0.	4.570	E+00 0.	4.113E+00

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

ADJUSTING FIELD LENGTH TO 053700 FOR THE DR SEGMENT

DATE 06/01/77 TIME 17.58.10. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE 37

MODEL*SAMPLE CONFIG=CASE5 STEP=10010 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

SOLAR DIRECT INCIDENT FLUX FOR STEP NO 9 TRUE ANOMALY = 0. TIME = .00000 +++++ IN THE SHADE ++++

NODE	DIRECT	DIRECT
Number	FLUX (QDS)	ABS. FLUX
1	0.	0.
2	9.40279E+01	8.46251E+01
3	0.	0.
4	1.65122E+02	1.48610E+02
11	0.	0.
12	0.	0.
13	1.00547E+01	9.04922E+00
14	9.17345E+01	8.25611E+01
200 21	0.	0. 0. 2.14500E+01
22 23	1.07250E+02 1.85762E+02 0.	3.71525E+01 0.
24 25 26	0. 0. 1.86871E+02	0. 3.73741E+01

TOTAL ELAPSED TIME IN PROBLEM =

39.871 SECONDS

H-3%

DATE 06/01/77 TIME 17.58.10. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC650U/SCOPE 3.4

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38

MODEL=SAMPLE CONFIG=CASE5 STEP=10010 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 9 TRUE ANOMALY = 0. TIME = .00000 ++++ IN THE SHADE ++++

NODE NUMBER	COMPUT	DIRECT	INCID. FLUX PLANETARY	DIRECT	ABS. FLUX PLANETARY
1		0.	0.	0.	0.
2		0.	0.	0.	0.
3		0.	0.	0.	0.
4		0.	0.	0.	0.
11		0.	0.	0.	0.
12		0.	0.	Ο.	0.
13		0.	0.	0.	0.
14		0.	0.	0.	0.
200		2.154E+01	1.436E+01	2.154E+00	1.436E+00
21		1.101E+02	7.423E+01	2.202E+01	6.681E+01
22		4.024E+01	2.683E+01	8.048E+00	2.414E+01
2 3		4.005E+01	2.645E+01	8.010E+00	2.380E+01
24		3.915E+01	2.678E+01	7.829E+00	2.411E+01
2 5		3.823E+01	2.643E+01	7.646E+00	2.379E+01
2 6		6.592E+00	4.570E+00	1.318E+00	4.113E+00

TOTAL ELAPSED TIME IN PROBLEM =

TOTAL ELAPSED TIME IN PROBLEM =

AND ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

39.939 SECONDS

DATE 06/01/77 TIME 17.58.11. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10010 ABSORBED Q COMPUTATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

VARIABLE NAME	CURRENT VALUE	DEFAULT	ABSORBED HEAT DEFINITION	OPT10NS
IAQSDS	10010	CURRENT	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10010	STEP NO. CURRENT	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDP	10010	STEP NO. CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

DATE 06/01/77 TIME 17.58.14. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE5 STEP=10010 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

ABSORBED HEATING RATES FOR ORBIT POINT = 10010 TRUE ANOMALY = UNITS ARE ENERGY PER UNIT TIME Ο. TIME = .0000

++++ IN THE SHADE ++++

NODE	SOLAR		ALBEDO		PLANE	TADV	70744		
	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	TOTAL HEAT DIRECT	RATES TOTAL	
1234112340123456 H-331	0 8.46251E+01 0 1.48610E+02 0 9.04922E+00 8.25611E+01 0 4.41956E+01 3.86535E+01 0 7.70056E+01	6.09706E+00 8.85599E+01 5.63941E+00 1.50897E+02 3.45633E+00 1.19405E+01 8.33825E+01 6.01971E-01 0 4.41956E+01 3.86535E+01 0 7.70056E+01	0 0 0 0 0 0 0 0 4.30861E+00 4.53642E+01 1.65816E+01 8.33337E+00 1.61312E+01 7.95471E+00 2.71649E+00	4.06578E-01 2.84976E-01 1.46185E-01 3.44352E-01 4.06578E-01 2.84976E-01 1.46185E-01 3.44352E-01 4.31271E+00 4.53642E+01 1.65816E+01 8.33337E+00 1.61312E+01 7.95471E+00 2.71649E+00	0 0 0 0 0 0 0 0 2.87125E+00 1.37654E+02 4.97434E+01 2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.87398E+00 1.37654E+02 4.97434E+01 2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	0 8.46251E+01 0 1.48610E+02 0 9.04922E+00 6.25611E+01 7.17986E+00 1.83018E+02 1.10521E+02 7.17497E+01 6.57989E+01 3.27009E+01 8.81957E+01	6.77458E+00 8.90347E+01 5.88301E+00 1.51471E+02 4.13385E+00 3.93017E+00 1.21841E+01 8.39563E+01 7.78867E+00 1.83018E+02 1.10521E+02 7.17497E+01 6.57989E+01 3.27009E+01 8.81957E+01	

TOTAL ELAPSED TIME IN PROBLEM =

40.414 SECONDS

ABSORBED Q STORED IN STEP 10010

TOTAL TIME TO COMPUTE ABSORBED Q .40 ADJUSTING FIELD LENGTH TO 053700 FOR THE DR SEGMENT THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE

DATE 06/01/77 TIME 17.58.18. THERMAL HADIATION ANALYSIS STORM CONFIGERAL/ORBGEN/DRCAL/AQCAL/QOCAL MODEL=SAMPLE CONFIG=CASE5 STEP=10011 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

SOLAR DIRECT INCIDENT FLUX FOR STEP NO 10 TRUE ANOMALY = 90.00000 TIME = .36701

NODE NUMBER	DIRECT FLUX (QDS)	DIRECT ABS. FLUX
£1 2 3 4 11 12 13 14 200 21 22 23 24	0. 2.75082E-07 0. 2.28800E+02 0. 0. 0. 2.28800E+02 3.03349E+02 6.73312E-07 4.29000E+02 5.21643E-07	0. 2.47574E-07 0. 2.05920E+02 0. 0. 2.05920E+02 3.03349E+01 1.34662E-07 8.58000E+01 1.04329E-07 0.
25 26	0.	0.

TOTAL ELAPSED TIME IN PROBLEM = 42.674 SECONDS

DATE 06/01/77 TIME 17.58.18.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10011 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 10 TRUE ANOMALY = 90.00000 TIME = .36701

NODE COMPUT NUMBER. 1 2 3 4 4 11 12 13 14 200 21 22 23 24 25 26	DIRECT ALBEDO 0. 0. 0. 0. 0. 0. 0. 1.200E+00 1.430E+00 2.061E+00 6.423E-01 0. 6.342E-01	INCID. FLUX PLANETARY 0. 0. 0. 0. 0. 0. 1.436E+01 7.423E+01 2.683E+01 2.643E+01 2.643E+01 4.570E+00	DIRECT ALBEDO O. O. O. O. O. O. O. 1.200E-01 2.859E-01 1.285E-01 O.	ABS. FLUX PLANETARY 0. 0. 0. 0. 0. 0. 1.436E+00 6.681E+01 2.414E+01 2.380E+01 2.411E+01 2.379E+01 4.113E+00
--	---	--	---	--

TOTAL ELAPSED TIME IN PROBLEM .

42.737 SECONDS

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

H-333

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DATE 06/01/77 TIME 17.58.18.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

MODEL*SAMPLE CONFIG*CASE5 STEP*10011
ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

JOURNELD 4 0			ABSORBED HEAT	OPTIONS
VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	N/A
IAQSDS	10011	CURRENT	STEP NUMBER REFERENCE FOR SOLAR DI	
IAQSDA	10011	STEP NO. CURRENT	STEP NUMBER REFERENCE FOR ALBEDO DI	- N/A
-	10011	STEP NO. CURRENT	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A
IAQSDP	10011	STEP NO.		

DATE 06/01/77 TIME 17.58.21.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6509/SCOPE 3.4

MODEL=SAMPLE CONFIG=CASE5 STEP=10011 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

PAGE

ABSORBED HEATING RATES FOR ORBIT POINT = 10011 TRUE ANOMALY = .90.0000 TIME # .3670 UNITS ARE ENERGY PER UNIT TIME

++++ IN THE SHADE ++++

NODE	SOL		ALBE	: D O	PLANE	TARY	TOTAL HEAT	
	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	TOTAL HEAT DIRECT	RATES TOTAL
1 2 3 4 11 12 13 14 20 21 22 23 24 25 26 H-335	0 2.47574E-07 0 2.05920E+02 0 0 0 2.05920E+02 6.06698E+01 2.77458E-07 1.76782E+02 1.08543E-07 0	1.17193E+01 9.60383E+00 7.62477E+00 2.11273E+02 1.17193E+01 9.60383E+00 7.62477E+00 2.11273E+02 6.15402E+01 2.77458E-07 1.76782E+02 1.08543E-07 0	0 0 0 0 0 0 0 0 2.40086E-01 5.89147E-01 8.49402E-01 1.33651E-01 0	2.26555E-02 1.58795E-02 8.14577E-03 1.91882E-02 2.26555E-02 1.58795E-02 8.14577E-03 1.91882E-02 2.40315E-01 5.89147E-01 8.49402E-01 1.33651E-01 0	0 0 0 0 0 0 0 0 0 2.87125E+00 1.37654E+02 4.97434E+01 2.4762BE+01 4.96677E+01 2.47462E+01 8.47363E+00	2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.87398E+00 1.37654E+02 4.97434E+01 2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	0 2.47574E-07 0 2.05920E+02 0 0 0 2.05920E+02 6.37811E+01 1.38243E+02 2.27375E+02 2.48965E+01 4.96677E+01 2.48782E+01 8.47363E+00	1.20129E+01 9.80962E+00 7.73033E+00 2.11522E+02 1.20129E+01 9.80962E+00 7.73033E+00 2.11522E+02 6.46545E+01 1.38243E+02 2.27375E+02 2.48965E+01 4.96677E+01 2.48782E+01 8.47363E+00

TOTAL ELAPSED TIME IN PROBLEM *

43.216 SECONDS

ABSORBED Q STORED IN STEP 10011

TOTAL TIME TO COMPUTE ABSORBED Q .41

ADJUSTING FIELD LENGTH TO 053700 FOR THE DR SEGMENT

PAGE 45 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

DATE 06/01/77 TIME 17.58.26. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

MODEL*SAMPLE CONFIG=CASE5 STEP=10012 DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

,73402 SOLAR DIRECT INCIDENT FLUX FOR STEP NO 11 TRUE ANDMALY = 180.00000 TIME =

	SOLAR DI	IRECT INCIDENT	FLUX FOR	STEP NO 11 IN THE SHADE	TRUE ANDMALT	•	160.0000	
NODE	DIRECT	DIRECT ABS. FLUX						

NODE Number	DIRECT FLUX (QDS)	DIRECT ABS. FLUX
1	0.	0.
2	0.	0.
3	0.	ο.
4	0.	0.
11	0.	0.
12	Ō.	0.
13	0.	0.
14	0.	0.
200	0.	0.
21	0.	0.
22	0.	0.
23	ō.	0.
24	Ö.	0.
25	0.	0.
26	0.	0.

46.844 SECONDS TOTAL ELAPSED TIME IN PROBLEM =

DATE 06/01/77 TIME 17.58.26.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE5 STEP=10012 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 11 TRUE ANOMALY = 180.00000 TIME = .73402

NODE Number	COMPUT	DIRECT	INCID. FLUX PLANETARY	DIRECT	
1		0.	0.		PLANETARY
2		0.	The state of the s	0.	0.
3		0.	0.	0.	0.
4		- I	0.	0.	Ο.
4.7		0.	0.	0.	0.
11		0.	0.	0.	0.
12		0.	0.	0.	Ó.
13		0.	Ο,	0.	o ·
14		0.	0.	o.	ŏ.
200		0.	1.436E+01	0.	1.436E+00
21		0.	7.423E+01	Ö.	
22		0	2.683E+01	0.	6.681E+01
23		0.	2.645E+01		2.414E+01
24		0.		0.	2.380E+01
25			2.678E+01	o.	2,411E+01
		0.	2.643E+01	0.	2.379E+01
2 6		0.	4.570E+00	0.	4.113E+00

TOTAL ELAPSED TIME IN PROBLEM *

46.910 SECONDS

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

H-33

DATE 06/01/77 TIME 18.01.45.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10012 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/DRBGEN/DRCAL/AQCAL/QCCAL

ABSORBED HEAT				OPTIONS
VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	-
IAQSDS	10012	CURRENT	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10012	STEP NO. CURRENT	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
·	10012	STEP NO. CURRENT	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A
IAQSDP	10012	STEP NO.		

DATE 06/01/77 TIME 18.01.48.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

MODEL=SAMPLE CONFIG=CASE5 STEP=10012 ABSORBED Q COMPUTATION LINK.

UNITS ARE ENERGY PER UNIT TIME

ABSORBED HEATING RATES FOR ORBIT POINT = 10012 TRUE ANOMALY =

180.0000 TIME =

.7340

++++ IN THE SHADE ++++

				• • • • •				
NODE	DIRECT	SOLAR TOTAL	ALE DIRECT	BEDO TOTAL	PLANE DIRECT		TOTAL HEAT	
1 2 3 4 11 12 13 14 200 21 22 23 24	DIRECT 0			-	PLANE DIRECT 0 0 0 0 0 0 0 0 0 1.37654E+02 4.97434E+01 2.47628E+01	707AL 2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.87398E+00 1.37654E+02 4.97434E+01 2.47628E+01	DIRECT 0 0 0 0 0 0 0 0 2.87125E+00 1.37654E+02 4.97434E+01	707AL 2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.87398E+00 1.37654E+02 4.97434E+01
25 26	0	0	0 0 0	0 0 0	4.96677E+01 2.47462E+01 8.47363E+00	4.96677E+01 2.47462E+01 8.47363E+00	2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00

TOTAL ELAPSED TIME IN PROBLEM *

47.406 SECONDS

ABSORBED Q STORED IN STEP 10012

TOTAL TIME TO COMPUTE ABSORBED Q .42 ADJUSTING FIELD LENGTH TO 053700 FOR THE DR SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE 49

DATE 06/01/77 TIME 18.01.59. THERMAL RADIATION ANALYSIS STORM CONTROL OF THE SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL MODEL=SAMPLE CONFIG=CASE5 STEP=10013 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

SOLAR DIRECT INCIDENT FLUX FOR STEP NO 12 TRUE ANOMALY = 105.71977 TIME = .43111

NODE NUMBER	DIRECT FLUX (QDS)	DIRECT ABS. FLUX
1 2 3 4 11 12 13 14 200 21 22 23 24 25 26	4.02633E+01 3.70551E+00 0. 1.85318E+02 4.02633E+01 0. 0. 1.85318E+02 2.44010E+02 1.00658E+02 4.16966E+02 6.94783E+00 0.	3.62370E+01 3.33496E+00 0. 1.66786E+02 3.62370E+01 0. 0. 1.66786E+02 2.44010E+01 2.01316E+01 8.33932E+01 1.38957E+00 0.
Ħ		

TOTAL ELAPSED TIME IN PROBLEM =

50.871 SECONDS

DATE 06/01/77 TIME 18.01.59.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC650J/SCOPE 3.4

PAGE

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MODEL=SAMPLE CONFIG=CASE5 STEP=10013 SAMPL DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 12 TRUE ANOMALY = 105.71977 TIME = .43111

NODE	COMPUT		****				•
NUMBER	COMPOI	DIRECT		LUX	DIRECT	ABS.	FLUX
HOMBER		ALBEDO	PLAN	ETARY	ALBEDO		PLANETARY
1		0.	Ο.		0.	0	
2		0.	0.		0.	Ö	
3		0.	0.		0.	ŏ	
4		0.	٥.		0.	. 0	=
11		0.	o.		0.		•
12		0.	o.			0	•
13		ŏ.			0.	0	•
14			0.		0.	0	•
		0.	0.		0.	0	•
200		0.	1.436	+01	0.	1	.436E+00
21		0.	7.423	+01	0.		.681E+01
22		0.	2.6838	+01	0.		.414E+01
2 3		0.	2.6458	+01	0.		.380E+01
24		0.	2.678		o.		
25		o.	2.643				.411E+01
26					0.		.379E+01
		0.	4.570E	.+00	0.	4	.113E+00

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TOTAL ELAPSED TIME IN PROBLEM =

50.936 SECONDS

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

DATE 06/01/77 TIME 18.02.00.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10013 ABSORBED Q COMPUTATION LINK.

10013 CURRENT

STEP NO.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/DRBGEN/DRCAL/AQCAL/QOCAL

			ABSORBED HEAT	OPTIONS
VARIABLE NAME	CURRENT VALUE	DEFAULT	DEFINITION	0, 1,0,10
IAQSDS	10013	CURRENT	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDA	10013	STEP NO. CURRENT	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
TAOSDA	10013	STEP NO. CURRENT	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A

н-342

IAQSDP

DATE 06/01/77 TIME 18.02.04.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10013 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

ABSORBED HEATING RATES FOR ORBIT POINT = 10013 TRUE ANOMALY = 405.7198 TIME = .4311

++++ IN THE SHADE ++++

NODE	SOL		ALE	BEDO	PLANE	TARY	TOTAL UEAR	
	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	TOTAL HEAT DIRECT	TOTAL
1 2 3 4 11 12 13 14 200 21 22 23 24 25 26	3.62370E+01 3.33496E+00 0 1.66786E+02 3.62370E+01 0 0 1.66786E+02 4.88021E+01 4.14792E+01 1.71823E+02 1.44570E+00 0	4.60497E+01 1.21871E+01 7.35578E+00 1.72226E+02 4.59890E+01 8.87480E+00 7.29424E+00 1.72165E+02 4.96811E+01 4.14792E+01 1.71823E+02 1.44570E+00 0	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 2.87125E+00 1.37654E+02 4.97434E+01 2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.87398E+00 1.37654E+02 4.97434E+01 2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	3.62370E+01 3.33496E+00 0 1.66786E+02 3.62370E+01 0 1.66786E+02 5.16733E+01 1.79133E+02 2.21567E+01 4.96677E+01 2.47462E+01 8.47363E+00	4.63207E+01 1.23770E+01 7.45320E+00 1.72456E+02 4.62599E+01 9.06471E+00 7.39166E+00 1.72394E+02 5.25551E+01 1.79133E+02 2.21567E+02 2.62085E+01 4.96677E+01 2.47462E+01 8.47363E+00

TOTAL ELAPSED TIME IN PROBLEM .

51.412 SECONDS

ABSORBED Q STORED IN STEP 10013

TOTAL TIME TO COMPUTE ABSORBED Q .42

ADJUSTING FIELD LENGTH TO 053700 FOR THE DR SEGMENT

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DATE 06/01/77 TIME 18.02.11. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

MODEL=SAMPLE CONFIG=CASE5 STEP=10014 SAMP DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

SOLAR DIRECT INCIDENT FLUX FOR STEP NO 13 TRUE ANOMALY = 105.91977 TIME = .43193

NODE Number	DIRECT FLUX (QDS)	DIRECT ABS. FLUX
1 2 3 4 11 12 13 14 200 21	4.07624E+01 3.79979E+00 0. 1.85182E+02 4.07624E+01 0. 0. 1.85182E+02 0.	3.66861E+01 3.41981E+00 0. 1.66664E+02 3.66861E+01 0. 1.66664E+02
22 23 24 25 26	0. 0. 0. 0.	0. 0. 0. 0.

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TOTAL ELAPSED TIME IN PROBLEM = 54.937 SECONDS

DATE 06/01/77 TIME 18.02.11. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10014 SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL DIRECT IRRADIATION CALCULATION WITH SPECULAR SURFACES.

ALBEDO AND PLANETARY DIRECT INCIDENT FLUXES FOR STEP NO 13 TRUE ANOMALY = 105.91977 TIME . ++++ IN THE SHADE ++++ .43193

NODE NUMBER 1	COMPUT	DIRECT ALBEDO 0.	INCID. FLUX PLANETARY	DIRECT	ABS. FLUX PLANETARY
ġ			0.	0.	0.
3		0.	0.	0.	0.
3		0.	0.	0.	o.
44		0.	0.	0.	o.
11		0.	0.	0.	ö.
12		0.	0.	0.	Ö.
13		0.	0.	0.	o.
14		0.	0.	o.	ö.
200		0.	1.436E+01	o.	1.436E+00
21		0.	7.423E+01	o.	6.681E+01
22		0.	2.683E+01	Ŏ.	
23		0.	2.645E+01	ŏ.	2.414E+01
24		0.	2.678E+01	Ö.	2.380E+01
. 2 5		0.	2.643E+01	o.	2.411E+01
2 6		0.	4.570E+00		2.379E+01
ა		=	4.5702400	0.	4.113E+00

TOTAL ELAPSED TIME IN PROBLEM .

55.005 SECONDS

ADJUSTING FIELD LENGTH TO 042100 FOR THE OD SEGMENT

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 DATE 06/01/77 TIME 18.02.12.

MODEL=SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

	-		ABSORBED HEAT	OPTIONS
VARIABLE NAME	CURRENT	DEFAULT	DEFINITION	NI / A
	10014	CURRENT	STEP NUMBER REFERENCE FOR SOLAR DI	N/A
IAQSDS		STEP NO.	STEP NUMBER REFERENCE FOR ALBEDO DI	N/A
IAQSDA	10014	CURRENT STEP NO.	STEP NUMBER REFERENCE FOR PLANETARY DI	N/A
IAQSDP	10014	CURRENT STEP NO.	STEP NUMBER REFERENCE TON TEMPERATURE	·

DATE 06/01/77 TIME 18.02.17. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL = SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

ABSORBED HEATING RATES FOR ORBIT POINT = 10014 TRUE ANOMALY = UNITS ARE ENERGY PER UNIT TIME

105.9198 TIME =

.4319

++++ IN THE SHADE ++++

NODE		_AR	AL	BEDO	PLANE	T A DV		
	DIRECT	TOTAL	DIRECT	TOTAL	DIRECT	TOTAL	TOTAL HEAT DIRECT	RATES TOTAL
1 2 3 4 11 12 13 14 200 21 22 23 24 25 26 H-347	3.66861E+01 3.41981E+00 0 1.66664E+02 3.66861E+01 0 0 1.66664E+02 0 0 0	4.18956E+01 9.05446E+00 5.71244E+00 1.68218E+02 4.18333E+01 5.65789E+00 5.64934E+00 1.68155E+02 8.34323E-01 0 0 0	000000000000000000000000000000000000000	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 2.87125E+00 1.37654E+02 4.97434E+01 2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.70943E-01 1.89907E-01 9.74173E-02 2.29476E-01 2.87398E+00 1.37654E+02 4.97434E+01 2.47628E+01 4.96677E+01 2.47462E+01 8.47363E+00	3.66861E+01 3.41981E+00 0 1.66664E+02 3.66861E+01 0 1.66664E+02 2.87125E+00 1.37654E+02 4.97434E+01 2.4762BE+01 4.96677E+01 2.47462E+01 8.47363E+00	4.21665E+01 9.24437E+00 5.80986E+00 1.68448E+02 4.21042E+01 5.84780E+00 1.68384E+02 3.70831E+00 1.37654E+02 4.7628E+01 4.96677E+01 2.47462E+01 8.47363E+00

TOTAL ELAPSED TIME IN PROBLEM =

55.524 SECONDS

ABSORBED Q STORED IN STEP 10014

TOTAL TIME TO COMPUTE ABSORBED Q .54 ADJUSTING FIELD LENGTH TO 051700 FOR THE QO SEGMENT DATE 06/01/77 TIME 18.02.24. THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

MODEL=SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q OUTPUT COMPUTATION LINK.

			ABSORBED Q OUT	OPTIONS
VARIABLE	CURRENT D	EFAULT	DEFINITION	
NAME	VALUE			N 74
		4	TIME ARRAY ID NUMBER FLUX TABLES START AT IQOTME + 1	N/A (4HTAPE,2HNO)
1 QOTME	1		PARAMETER TO OUTPUT TO BCD TAPE	(3HPUN,2HNO)
QOTAPE	NO	2HNO	PARAMETER POPULATION DARRITED FOR OUTPUT	
OOPNCH	PUN	2HNO	PUNCH/NO PUNCH PARAMETER FOR OUTPUT	N/A
	1.0000	1.0	AREA MULTIPLYING FACTOR	N/A
QOAMPE			FLUX MULTIPLYING FACTOR	N/A
QOFMPF	1.0000		TIME MULTIPLYING FACTOR	(3HTAB, 2HAV, 4HBOTH)
OOTMPF	1.0000	1.0	TIME MUCH TO DETERMINE TYPE OF OUTPUT	
OUTYPE	BOTH	NONE	PARAMETER TO DETERMINE TYPE OF OUTPUT	N/A
•	0	0	STEP NUMBER REFERENCE FOR CORRESPONDENCE DATA	
IQOCOR	V	•		(3HALL, ARRAY NAME)
IONARY	ALL	NONE	STEP NO. ARRAY DIRECTIVE	(allue 2) ullus .

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DATE 06/01/77 TIME 18.02.26.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

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MODEL=SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RECAL/GBCAL/RKCAL/OREGEN/DRCAL/AQCAL/QCCAL

ABSORBED HEAT FLUX TABLES PUNCHED

Q = INPUT * FMPF WHERE FMPF = 1.00000E+00 TIME = INPUT * TMPF WHERE TMPF = 1.00000E+00 AREA IS ON SUBROUTINE CALL CARDS

END\$

END\$

END\$

15\$ HEAT FLUX ARRAY

16\$ HEAT FLUX ARRAY

```
MODEL=SAMPLE CONFIG=CASE5 STEP=10014
```

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QCAL

ABSORBED Q OUTPUT COMPUTATION LINK. 1.969E-08, 3.670E-01, 4.311E-01, 4.319E-01, 7.340E-01 END\$ 2\$ HEAT FLUX ARRAY 6.775E+00, 1.201E+01, 4.632E+01, 4.217E+01, 2.709E-01 END\$ 8.903E+01, 9.810E+00, 1.238E+01, 9.244E+00, 1.899E-01 3\$ HEAT FLUX ARRAY FND\$ 4\$ HEAT FLUX ARRAY 5.883E+00, 7.730E+00, 7.453E+00, 5.810E+00, 9.742E-02 END\$ 5\$ HEAT FLUX ARRAY 1.515E+02, 2.115E+02, 1.725E+02, 1.684E+02, 2.295E-01 END\$ 6\$ HEAT FLUX ARRAY 4.134E+00, 1.201E+01, 4.626E+01, 4.210E+01, 2.709E-01 END\$ 75 HEAT FLUX ARRAY 3.930E+00, 9.810E+00, 9.065E+00, 5.848E+00, 1.899E-01 END\$ 1.218E+01, 7.730E+00, 7.392E+00, 5.747E+00, 9.742E-02 8\$ HEAT FLUX ARRAY END\$ 8.396E+01, 2.115E+02, 1.724E+02, 1.684E+02, 2.295E-01 9\$ HEAT FLUX ARRAY .3.894E+00, 3.233E+01, 2.628E+01, 1.854E+00, 1.437E+00 10% HEAT FLUX ARRAY END\$ 8.883E+01, 6.710E+01, 8.694E+01, 6.681E+01, 6.681E+01 115 HEAT FLUX ARRAY END\$ 12\$ HEAT FLUX ARRAY 5.364E+01, 1.104E+02, 1.075E+02, 2.414E+01, 2.414E+01 END\$ 6.896E+01, 2.393E+01, 2.519E+01, 2.380E+01, 2.380E+01 13\$ HEAT FLUX ARRAY END\$ 3.194E+01, 2.411E+01, 2.411E+01, 2.411E+01, 2.411E+01 14\$ HEAT FLUX ARRAY

3.143E+01, 2.391E+01, 2.379E+01, 2.379E+01, 2.379E+01

4.281E+01, 4.113E+00, 4.113E+00, 4.113E+00, 4.113E+00

DATE 06/01/77 TIME 18.02.27.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

AGE

MODEL=SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QOCAL

DA11MC SUBROUTINE CALL CARDS

AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

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MODEL=SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q OUTPUT COMPUTATION LINK. SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORSGEN/DRCAL/AQCAL/QOCAL

DA11MC SUBROUTINE CALL CARDS

```
AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00
                                       2, 1.00000000E+00,Q
                                                              1)$
DA11MC( 1.46792174E+00,TIMEM,A
                                                              2)$
                                       3. 1.00000000E+00.Q
DA11MC( 1.46792174E+00,TIMEM.A
                                 1,A
                                       4, 1.00000000E+00.Q
                                                              3)$
DA11MC( 1.46792174E+00.TIMEM.A
                                 1,A
                                                              4)$
                                       5, 1.0000000E+00,Q
DA11MC( 1.46792174E+00.TIMEM.A
                                 1,A
                                                             11)$
                                       6, 1.00000000E+00.Q
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                       7, 1.0000000E+00,Q
                                                             12)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                                             13)$
                                       8, 1.00000000E+00.Q
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                       9, 1.00000000E+00,Q
                                                             14)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1 . A
                                      10, 2.00000000E+00,Q
                                                             200)$
DA11MC( 1.46792174E+00.TIMEM, A
                                 1 . A
                                      11, 2.06040000E+00.Q
                                                             21)$
DAIIMC( 1.46792174E+00.TIMEM, A
                                 1.A 12, 2.06040000E+00.Q
                                                              221$
DA11MC( 1.46792174E+00,TIMEM,A
                                      13, 1.04040000E+00,Q
                                                              23)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1.A
                                      14, 2.06040000E+00,Q
                                                              24)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                      15, 1.04040c00E+00,Q
                                                              25)$
DA11MC( 1.46792174E+00,TIMEM,A
                                 1,A
                                      16, 2.06040C00E+00,Q
                                                              26)$
DA11MC( 1.46792174E+00,TIMEM,A
```

DATE 06/01/77 TIME 18.02.27.

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4

PAGE

MODEL=SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q OUTPUT COMPUTATION LINK.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

AVERAGE ORBITAL HEATING FLUX AND AREA CARDS PUNCHED

VALUES ARE FLUX = INPUT (UNITS) * FMPF WHERE FMPF = 1.00000E+00 VALUES ARE AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) CDC6500/SCOPE 3.4 PAGE 63

MODEL=SAMPLE CONFIG=CASE5 STEP=10014 ABSORBED Q OUTPUT COMPUTATION LINK.

DATE 06/01/77 TIME 18.02.27.

SAMPLE CASE 5 - FFCAL/RBCAL/GBCAL/RKCAL/ORBGEN/DRCAL/AQCAL/QDCAL

AVERAGE ORBITAL HEATING FLUX AND AREA CARDS PUNCHED

VALUES ARE FLUX = INPUT (UNITS) * FMPF WHERE FMPF = 1.00000E+00 VALUES ARE AREA = INPUT (UNITS) * AMPF WHERE AMPF = 1.00000E+00

```
Q 1= 1.60259282E+01* 1.00000000E+00*1.0000 $
Q 2= 2.76332721E+01* 1.00000000E+00*1.0000 $
S 5.28929786E+00* 1.00000000E+00*1.0000 $
Q 4= 1.42414559E+02* 1.00000000E+00*1.0000 $
Q 11= 1.53502067E+01* 1.00000000E+00*1.0000 $
Q 12= 5.50982702E+00* 1.00000000E+00*1.0000 $
Q 13= 6.84882373E+00* 1.00000000E+00*1.0000 $
Q 14= 1.25520079E+02* 1.00000000E+00*1.0000 $
Q 20= 1.23073108E+01* 2.0000000E+00*1.0000 $
Q 21= 7.32878030E+01* 2.06040000E+00*1.0000 $
Q 22= 6.05224328E+01* 2.06040000E+00*1.0000 $
Q 23= 3.51910041E+01* 1.04040000E+00*1.0000 $
Q 24= 2.60631280E+01* 2.0604000E+00*1.0000 $
Q 25= 2.57340091E+01* 1.04040000E+00*1.0000 $
Q 26= 1.37857494E+01* 2.06040000E+00*1.0000 $
```

TOTAL TIME TO COMPUTE ABSORBED Q OUT .90

1-35²

```
HEADER OPTIONS DATA
 TITLE SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN
        MODEL
                    = SAMPLE
HEADER SURFACE DATA
C----THIS SURFACE DATA BLOCK IS USED IN SAMPLE CASES 1 THROUGH 6
 C---- WITH VARIOUS PORTIONS OF IT BEING ACTIVATED FOR THE DIFFERENT
 C---- CASES.
 BCS
        BOXINR -
        SURFN
                    = 1
        TYPE
                    = RECT
        ACTIVE
                    = BOTTOM
       PROP
                    = 0.9.0.9
       P1
                    = 1.0, 0.0, 1.0
                    = 1.0, 0.0, 0.0
       P3
                    = 1.0, 1.0, 0.0
       COM
                    = * INNER RIGHT FRONT *
S
       SURFN
                    = 2
       TYPE
                    = RECT
       ACTIVE
                    = BOTTOM
       PROP
                    = 0.9.0.9
       P1
                    = 1.0, 1.0, 1.0
       P2
                    = 1.0, 1.0, 0.0
       ΡЗ
                    = 0.0. 1.0. 0.0
       COM
                    = * INNER RIGHT SIDE *
S
       SURFN
                    = 3
       TYPE
                    = RECT
       ACTIVE
                    = TOP
       PROP
                    = 0.9, 0.9
       P1
                    = 0.0, 0.0, 1.0
       P2
                    = 0.0, 0.0, 0.0
       Р3
                   = 0.0, 1.0, 0.0
       COM
                   = * INNER RIGHT BACK *
S
       SURFN
                    = 4
       TYPE
                    = RECT
       ACTIVE
                    = TOP
       PROP
                    = 0.9.0.9
       P1
                   = 1.0, 1.0, 0.0
                   = * INNER RIGHT BOTTOM *
       BOXINL, IMGBCS=BOXINR, NINC=10, IREFSF=1000, IGEN=ALL
C----THE FOREGOING CARD IMAGES BCS BOXINE IN REFERENCE PLANE 1000
C----TO CREATE BCS BOXINL. EQUIVALENT FORM FACTOR DATA FOR
C----BOXINL WILL ALSO BE GENERATED.
R
       REFNO
                   = 1000
       P1
                   = 1.0, 0.0, 1.0
       P2
                   = 1.0, 0.0, 0.0
       Р3
                   = 0.0, 0.0, 0.0
       COM
                   = * IMAGING PLANE *
BCS
       LIDINR
       SURFN
                   = 5
       TYPE
                   = RECT
       ACTIVE
                   = BOTTOM
       PROP
                   = 0.9,0.9
       P1
                   = 1.0, 1.0, 0.0
       COM
                   # * INNER RIGHT LID *
```

エ

55

```
s
                   = 15
       SURFN
                   = 5
       IMAGSF
                   = 1000
       IREFSF
                   = * INNER LEFT LID *
       COM
BCS
       TUOXOG
                   = 21
       SURFN
                   = BOX5
       TYPE
                   = QUT
       ACTIVE
                   # NO
       SHADE
                   = 0.2, 0.9
       PROP
                   = 1.01.-1.01, 1.01
       P1
                    = 1.01, 1.01, 1.01
       P2
                    =-0.01, 1.01, 1.01
       P3
                    =-0.01. 1.01,-0.01
       P4
                    = * OUTER SURFACES *
       COM
       LIDOUT
BCS
                    = 26
       SURFN
                    = RECT
       TYPE
                    = TOP
       ACTIVE
                    = NO
       SHADE
                    = 0.2, 0.9
       PROP
                    = 1.01, -1.01, 0.01
       P1
                    = 1.01, 1.01, 0.01
       P2
                    =-0.01, 1.01, 0.01
       Р3
                    * * OUTER SURFACE OF LID *
       COM
C----THE NEXT TWO BCS"S (MESSR AND MESSL) ARE ACTIVATED IN SAMPLE
C----CASE 4 ONLY.
С
BCS
       MESSR
                    = 101
S
        SURFN
                    = RECT
       TYPE
                    = TOP
       ACTIVE
                    = 1.0.1.0
        PROP
                    = 1.0, 0.0, 1.0
        P1
                    = 1.0. 0.0. 0.0
        P2
                    = 0.0, 0.0, 0.0
        Р3
                    = * PRIMARY MESS NODE, RIGHT SIDE *
        COM
        MESSL
 BCS
                    = 111
        SURFN
                    = RECT
        TYPE
                    = BOTTOM
        ACTIVE
                    = 1.0, 1.0
        PROP
                     = 1.0, 0.0, 1.0
        P1
                    = 1.0. 0.0, 0.0
        P2
                    = 0.0, 0.0, 0.0
        Р3
                    = * PRIMARY MESS NODE, LEFT SIDE *
        COM
C----THE FOLLOWING BCS (LIDSP) IS ACTIVATED IN SAMPLE CASE 5 ONLY.
        LIDSP
 BCS
                     = 200
        SURFN
 s
                     = RECT
        TYPE
                     = BOTTOM
        ACTIVE
                     = 0.1, 0.1
        PROP
                     = 0.8
        SPRI
                     = 0.8
        SPRS
        P1
                     = 1.0, -1.0, 0.0
                     = 1.0. 1.0. 0.0
        P2
                     = 0.0, 1.0, 0.0
        P3
                     = * SPECULAR LID *
        COM
 HEADER BCS DATA
 BCS
        BOXINR
```

工

```
BCS
       BOXINL
 BCS
       LIDINR ,0.,0.,1.,0.,-45.,0.
 BCS
       BOXOUT
 BCS
       LIDOUT ,0.,0.,1.,0.,-45.,0.
 BCS
       MESSR
 BCS
       MESSL
 BCS
       LIDSP ,0.,0.,1..0.,-45.,0.
HEADER FORM FACTOR DATA
C
C-----ENTER KNOWN ZERO FORM FACTORS FOR CASE 6.
С
FIG CASE6
NODEA 1,2,3,4,11,12,13,14,5,15,END
       1,1,0.
       1.11.0.
       2,2,0.
       3,3.0.
       3,13,0.
       4,4.0.
       4,14.0.
       5,5,0.
       5,15.0.
HEADER OPERATIONS DATA
C----BUILD THE CASE 6 CONFIGURATION
STEP 1
BUILD CASEG, BOXING, BOXING, LIDING
C-----CALCULATE THE FORM FACTOR MATRIX USING FECAL
С
L
      FFCAL
C----- REBUILD SAME GEOMETRY UNDER A DIFFERENT NAME.
С
STEP 2
C----- RECALCULATE FORM FACTORS USING NFFCAL.
BUILD CASE6B, BOXINR, BOXINL, LIDINR
L NFFCAL
END OF DATA
```

THERMAL RADIATION ANALYSIS SYSTEM UNIVAC 1110/EXEC 8

TTTTTTTTTTT TT TTT TTT TTT TTT TT	RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR	AAAAAA AAAAAAAAA AAA AAA AAA AAA AAAAAAA	SSSSSSSS SSSSSSSSSSS SSS SS SSS SSS SSS	TRASYS II YYYY YYYY YYY YYY YYY YYY	
			5555555	YYY YYY YYYY YYY YYY YYY YYY	\$

=	VERSION.MODIFICATION V	JC2E5 121178
- 358	DATE OF RUNTIME OF RUN	051279 120953 JENSEO

DATE 051279 TIME 121045 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION PAGE 1

MODEL = N/A

OPTION AND TITLE DATA BLOCKS

CARD ORGIN 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

INPUT HEADER OPTIONS DATA

INPUT TITLE SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

INPUT MODEL = SAMPLE

PAGE

MODEL = SAMPLE TRASYS INFORMATION TO USER SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

THIS SECTION OF THE TRASYS PRINTOUT WAS DEVISED TO INFORM THE TRASYS USERS OF THE STATUS OF THE TRASYS PROGRAM WITHOUT HAVING TO PRINTOUT ALL THE STATUS INFORMATION ON EVERY RUN. TO OBTAIN ADDITIONAL INFORMATION ON HOW TO USE THIS SECTION OF THE TRASYS PRINTOUT, PLACE A (INFO=INFO) IN THE OPTIONS DATA BLOCK.

FOR TRASYS ASSISTANCE AND/OR POSSIBLE TRASYS PROGRAM PROBLEMS, PLEASE CONTACT BOB VOGT AT JSC-2326.

NEWRL 08/29/77 DOCUMENTATION ADDITION

THE TRASYS -N- VERSION HAS BEEN UPDATED TO THE UC2E2 AND UL2E4 LEVEL. SEE LATEST USERS MANUAL FOR INFORMATION ON USER-CALLED SUBROUTINE ARGUMENT CHANGES AND NEW CAPABILITIES.

END OF TRASYS INFORMATION FILE

++NOTE++ DATA ORIGINATION FROM INPUT FILE, NO -RSI- SOURCE EDITING

++NOTE++ THE (RSO) FILE WILL NOT BE WRITTEN

DATE 051279 TIME 121046 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION

PAGE

MODEL = SAMPLE MODEL HISTORY

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

MODEL NAME SAMPLE

MODEL TITLE SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

AA JENSEO .051279 121045

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION PAGE 051279 TIME 121046

DATE SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN MODEL = SAMPLE

SOURCE DATA EDIT DIRECTIVES

12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL CARD ORGIN

工 362 DATE 051279 TIME

121052

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION

PAGE

E 5

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

```
12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL
CARD ORGIN
INPUT
                   HEADER SURFACE DATA
                                                                                                                                  AΑ
INPUT
                                                                                                                                  AA
INPUT
                   C----THIS SURFACE DATA BLOCK IS USED IN SAMPLE CASES 1 THROUGH 6
                                                                                                                                  AA
INPUT
                   C----WITH VARIOUS PORTIONS OF IT BEING ACTIVATED FOR THE DIFFERENT
                                                                                                                                  AA
INPUT
                   C----CASES.
                                                                                                                                  АΑ
INPUT
                   С
                                                                                                                                  AA
INPUT
                   BCS
                          BOXINR
                                                                                                                                  AA
INPUT
                          SURFN
                                       = 1
                                                                                                                                  AA
INPUT
                          TYPE
                                       = RECT
                                                                                                                                  AΑ
INPUT
                          ACTIVE
                                       = BOTTOM
                                                                                                              10
                                                                                                                                  AA
INPUT
                          PROP
                                       = 0.9, 0.9
                                                                                                              11
                                                                                                                                  AA
INPUT
                          P1 -
                                       = 1.0, 0.0. 1.0
                                                                                                              12
                                                                                                                                  AA
INPUT
                          P2
                                       = 1.0, 0.0, 0.0
                                                                                                              13
                                                                                                                                  AA
INPUT
                          P3
                                       = 1.0, 1.0, 0.0
                                                                                                              14
INPUT
                                                                                                                                  AA
                          COM
                                       = * INNER RIGHT FRONT *
                                                                                                              15
INPUT
                                                                                                                                  AA
                   S
                          SURFN
                                       = 2
                                                                                                              16
INPUT
                                                                                                                                  AA
                          TYPE
                                       = RECT
                                                                                                              17
INPUT
                                                                                                                                  AA
                          ACTIVE
                                       = BOTTOM
                                                                                                              18
INPUT
                                                                                                                                  AA
                          PROP
                                       = 0.9, 0.9
                                                                                                              19
INPUT
                                                                                                                                  AA
                          P1
                                       = 1.0, 1.0, 1.0
                                                                                                              20
                                                                                                                                  AA
INPUT
                          P2
                                       = 1.0, 1.0, 0.0
                                                                                                              21
                                                                                                                                  AA
INPUT
                          P3
                                       = 0.0, 1.0, 0.0
                                                                                                              22
INPUT
                                                                                                                                  AΑ
                          COM
                                       = * INNER RIGHT SIDE *
                                                                                                              23
INPUT
                                                                                                                                  AA
                   S
                          SURFN
                                       = 3
                                                                                                              24
                                                                                                                                  AΑ
INPUT
                          TYPE
                                       = RECT
                                                                                                              25
INPUT
                                                                                                                                  AA
                          ACTIVE
                                       = TOP
                                                                                                              26
INPUT
                                                                                                                                  AΑ
                          PROP
                                       = 0.9, 0.9
                                                                                                              27
INPUT
                                                                                                                                  AA
                          P1
                                       = 0.0, 0.0, 1.0
                                                                                                              28
INPUT
                                                                                                                                  AA
                          P2
                                       = 0.0, 0.0, 0.0
                                                                                                              29
                                                                                                                                  AA
INPUT
                          Р3
                                       = 0.0, 1.0, 0.0
                                                                                                              30
INPUT
                                                                                                                                  AA
                          COM
                                       = * INNER RIGHT BACK *
                                                                                                             31
INPUT
                   S
                                                                                                                                  AA
                          SURFN
                                       = 4
                                                                                                             32
INPUT
                                                                                                                                  AA
                          TYPE
                                       = RECT
                                                                                                              33
                                                                                                                                  AA
INPUT
                          ACTIVE
                                       = TOP
                                                                                                             34
INPUT
                                                                                                                                  AA
                          PROP
                                       = 0.9.0.9
                                                                                                             35
INPUT
                                                                                                                                  AA
                          P1
                                       = 1.0, 1.0, 0.0
                                                                                                             36
INPUT
                                                                                                                                  AΑ
                                       = * INNER RIGHT BOTTOM *
                                                                                                             37
INPUT
                                                                                                                                 AA
                   BCS
                          BOXINL, IMG BCS=BOXINR, NINC=10, IREFSF=1000, IGEN=ALL
                                                                                                             38
                                                                                                                                 AA
INPUT
                                                                                                             39
                                                                                                                                 AA
INPUT
                  C----THE FOREGOING CARD IMAGES BCS BOXINE IN REFERENCE PLANE 1000
                                                                                                             40
                                                                                                                                 AA
INPUT
                  C----TO CREATE BCS BOXINL. EQUIVALENT FORM FACTOR DATA FOR
                                                                                                             41
                                                                                                                                 AA
INPUT
                  C----BOXINL WILL ALSO BE GENERATED.
                                                                                                             42
                                                                                                                                 AA
INPUT
                                                                                                             43
                                                                                                                                 AA
                         IMAGING SURFACE (
                                               1) BCS (BOXINR), GENERATING SURFACE (
                                                                                         11) BCS (BOXINL)
                         IMAGING SURFACE (
                                               2) BCS (BOXINR), GENERATING SURFACE (
                                                                                         12) BCS (BOXINL)
                         IMAGING SURFACE (
                                               3) BCS (BOXINR), GENERATING SURFACE (
                                                                                         13) BCS (BOXINL)
                         IMAGING SURFACE (
                                               4) BCS (BOXINR), GENERATING SURFACE (
                                                                                         14) BCS (BOXINL)
```

6

PAGE

MODEL = SAMPLE SURFACE DATA INPUT BLOCK

MODEL = SAMPLE SURFACE DATA II	NPUT BLOCK		2000 0 0045070 7 23456	78 8 EDIT NO. OLD EDIT NO	. LABE
CARD ORGIN	12345678	1 2345678	2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 23456	44	AA
		REFNO	± 1000	45	AA AA
INPUT		21	± 1.0, 0.0, 1.0	46	AA
INPUT		2	= 1.0, 0.0, 0.0	47	AA
INPUT		_	- n n. 0.0. 0.0	48	AA
INPUT	•	23	= * IMAGING PLANE *	49	
INPUT	-	COM	a - Image - Im	50	AA
INPUT		LIDINR	_	51	AA
INPUT	s s	SURFN	= 5	52	AA
INPUT		TYPE	= RECT	53	AA
	4	ACTIVE	= BOTTOM	54	AA
INPUT		PROP	= 0.9,0.9	55	AA
INPUT		P1	= 1.0, 1.0, 0.0	56 56	AA
INPUT	i	COM	= * INNER RIGHT LID *		AA
INPUT		SURFN	≖ 15	57	AA
INPUT		IMAGSF	= 5	58	AA
INPUT		IREFSF	- 1000	59	AA
INPUT			# INNER LEFT LID *	60	AA
INPUT		COM		61	
INPUT	000	BOXOUT		62	AA
INPUT		SURFN	= 21	63	AA
		TYPE	= BOX5	64	A.
INPUT		ACTIVE	= OUT	65	A
INPUT		SHADE	= NO	66	A
INPUT		PROP	= 0.2,0.9	67	A
INPUT		P1	= 1.01,-1.01, 1.01		A
INPUT		P2	_ 1 01. 1.01. 1.01	68	A
INPUT			=-0.01, 1.01, 1.01	69	A
INPUT		P3	0 01. 1.010.01	70	A
INPUT		P4	# OUTER SURFACES *	71	Ã.
INPUT		COM	2 4 64 124	72	Ä
INPUT	BCS	LIDOUT	= 26	73	
INPUT	S	SURFN	= 20	74	A
		TYPE	= RECT	75	A
INPUT		ACTIVE	= TOP	76	A
INPUT		SHADE	= NO	77	A
INPUT		PROP	= 0.2,0.9	78	Д
INPUT		P1	= 1.01,-1.01, 0.01	79	Δ
INPUT		P2	= 1.01. 1.01, 0.01	80	4
INPUT		P3	a a 4 A 1 D D 1		
INPUT		COM	= * OUTER SURFACE OF LID *	81	,
INPUT		CUIVI	ACTIVATED IN SAMPLE	82	,
INPUT	С	NEVE T	WO BCS'S (MESSR AND MESSL) ARE ACTIVATED IN SAMPLE	83	1
INPUT	C	THE NEXT	WU D63 6 (WE65)	84	•
INPUT	C	-CASE 4 ONL	Y •	85	
INPUT	С			86	,
	BCS	MESSR		87	
INPUT	S	SURFN	= 101	88	
INPUT	•	TYPE	≠ RECT	89	4
INPUT		ACTIVE	≠ TOP	90	
INPUT		PROP	± 1.0,1.0	30	
INPUT		P1	= 1.0, 0.0, 1.0		
INPUT		F 1			

DATE 051279 TIME 121101 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION PAGE 7 MODEL = SAMPLE SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN SURFACE DATA INPUT BLOCK CARD ORGIN 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL . INPUT P2 = 1.0, 0.0, 0.0 INPUT 91 РЗ AA = 0.0, 0.0, 0.0 INPUT 92 AA COM = * PRIMARY MESS NODE, RIGHT SIDE * INPUT 93 BCS AA MESSL INPUT 94 AA SURFN = 111 INPUT 95 AA TYPE = RECT INPUT 96 AA ACTIVE = BOTTOM INPUT 97 PROP AA = 1.0, 1.0INPUT 98 P1 AA = 1.0, 0.0, 1.0INPUT 99 P2 AA = 1.0, 0.0, 0.0INPUT 100 AA Р3 = 0.0, 0.0, 0.0 INPUT 101 COM AA = * PRIMARY MESS NODE, LEFT SIDE * INPUT С 102 AA INPUT C----THE FOLLOWING BCS (LIDSP) IS ACTIVATED IN SAMPLE CASE 5 ONLY. 103 AA INPUT 104 C AA INPUT 105 BCS LIDSP AA INPUT 106 S SURFN AA = 200 INPUT 107 TYPE = RECT AA INPUT 108 **ACTIVE** AA = BOTTOM INPUT 109 AA PROP = 0.1, 0.1INPUT 110 SPRI AA = 0.8 INPUT 111 AA SPRS = 0.8 INPUT 112 AA P1 **= 1.0,-1.0, 0.0** INPUT 113 P2 AA = 1.0, 1.0, 0.0 INPUT 114 AA P3 = 0.0, 1.0, 0.0INPUT 115 COM AA = * SPECULAR LID * 116

AA

DATE 05127	9 TIME	121115	THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION	PAGE	8	
			SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN			
MODEL = SAMPLE BCS DATA INPUT	BLOCK		3 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT	NO. OLD EDI	T NO.	LABEL
CARD ORGIN	12345	678 1 234567	1	17		
INPUT	HEADE BCS BCS BCS BCS BCS BCS	BOXOUT LIDOUT .O. MESSR	,0.,1.,0.,-45.,0. 10.,1.,0.,-45.,0.	18 19 20 21 22 23 124 125		AA AA AA AA AA

8

PAGE

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DATE 05	51279 TIME	121118	THERMAL RADIATION ANALYSIS SYSTEM ((TRASYS)	UNIVAC/EXC 8 VERSION	PAGE	9
MODEL = SAN FORM FACTOR	MPLE R DATA INPUT :	ВLОСК	SAMPLE CASE 6 - FFGAL/N	NFFCAL COM	PARISON RUN		
CARD ORGIN	12345	67B 1 23456	8 2 2345678 3 2345678 4 2345678 5 23 45	5678 6 234	5678 7 2345678 8 EDIT NO	. OLD EDIT	NO. LABE
INPUT		R FORM FACTO					
INPUT	C		57		126	,	AA
INPUT	-	-ENTER KNOWN	ZERO FORM FACTORS FOR CASE 6.		127		AA
INPUT	č	2211 1110111	ZERO FORM FACTORS FOR CASE 6.		128		AA
INPUT	FIG	CASE 6			129		AA
INPUT	NODEA		12 12 14 5 15 04 00 00 04 05 00 500		130		AA
INPUT	BOTH	21,ZERO	,12,13,14,5,15,21,22,23,24,25,26,END		131		AA
INPUT	ווסט	22,ZERO			132		AA
INPUT		23,ZERO			133		AA
INPUT					134		AA
INPUT		24, Z ERO			135		AA
INPUT		25,ZERO			136		ÄÄ
INPUT		26,ZERO			137		ÃÃ
INPUT		1,1,0.			138		ÃÃ
INPUT		1,11,0.			139		ÂÃ
INPUT		2,2,0.			140		ÂÃ
INPUT		3,3,0.			141		ÄÄ
INPUT		3,13,0.			142		
INPUT		4,4,0.			143		. AA
		4,14,0.			144		AA
INPUT		5,5,0.			145		AA
INPUT		5,15,0.			145		AA
					140		AA

051279 TIME 121124 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION PAGE 10

DATE SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN MODEL = SAMPLE

OPERATION DATA INPUT BLOCK (PASS 1) 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL

CARD ORGIN 147

HEADER OPERATIONS DATA INPUT

+++++ OPERATIONS DATA BLOCK (PASS 1) COMPLETE +++++

工

DATE 051279 TIME 121125 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION PAGE 11 MODEL = SAMPLE SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN OPERATION DATA INPUT BLOCK (PASS 2) CARD ORGIN 12345678 1 2345678 2 2345678 3 2345678 4 2345678 5 2345678 6 2345678 7 2345678 8 EDIT NO. OLD EDIT NO. LABEL INPUT INPUT C----BUILD THE CASE 6 CONFIGURATION 148 INPUT 149 С INPUT 150 STEP 1 INPUT BUILD CASE6, BOXINR, BOXINL, LIDINR, BOXOUT, LIDOUT 151 PROG 152 CALL BUILDC (BOXINR, 6HCASE6) PROG 0 CALL ADD (BOXINL) PROG CALL ADD (LIDINR) PROG CALL ADD (BOXOUT) PROG CALL ADD (LIDOUT) INPUT С INPUT C---- CALCULATE THE FORM FACTOR MATRIX USING FFCAL 153 AA INPUT С 154 AA

AA

AΑ

AA

AΑ

AA

AA

AA

AΑ

155

156

157

158

159

160

161

0

0

0

0

162

163

164

165

166

INPUT

INPUT

INPUT

INPUT

INPUT

INPUT

PROG

PROG

PROG

PROG

PROG

INPUT

INPUT

INPUT

INPUT

INPUT

L

С

С

STEP 2

FFCAL

NFFCAL

END OF DATA

C---- REBUILD SAME GEOMETRY UNDER A DIFFERENT NAME.

BUILD CASE 6B, BOX INR, BOXINL, LIDINR, BOXOUT, LIDOUT

CALL BUILDC (BOXINR, 6HCASE6B)

C-----RECALCULATE FORM FACTORS USING NFFCAL.

CALL ADD (BOXINL)

CALL ADD (LIDINR)

CALL ADD (BOXOUT)

CALL ADD (LIDOUT)

DATE 051279 TIME 121131 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC/EXC 8 VERSION PAGE 12

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

PROCESSOR CORE ALLOCATION

THE FOLLOWING IS THE PROCESSOR CORE ALLOCATION FOR THOSE SEGMENTS WHICH WILL BE LOADED IN THIS EXECUTION (APPROX.) ...

OCTAL/DECIMAL

H - 370

DATE	051279 TIME	121133	THERMAL	RADIATION A	NALYSIS	SYSTEM	(TRASYS)	UNIVAC/E	XC 8 VI	ERSION	PAGE	13
MODEL = WRAP UP	SAMPLE OF THE PRE-PROC	ESSOR	٠	SAMPLE	CASE 6 -	FFCAL,	/NFFCAL CO	MPARISON	RUN			
PRE-PROC	DOCUMENTATION QUANTITIES DA ARRAY DATA PR SURFACE DATA SURFACE DATA BCS DATA PRE- FORM FACTOR D SHADOW DATA P FLUX DATA PRE- CORRESPONDENC OPERATIONS DA SUBROUTINE DA	IG I DATA PRE-PRO TA PRE-PROCES E-PROCESSING PRE-PROCESSING PROCESSING PROCESSING -PROCESSING -PROCESSING -PROCESSING -PROCESSING -PROCESSING -PROCESSING E DATA PRE-PRO	CESSING SING G (PASS 1 G (PASS 2 SSING SSING CCESSING SING	1.17 00 05 20 25 64 00 00	11 10 15 10 10 10 10 10 10 10 10 10 10 10 10 10	c	OYM-STORAG 676 0 268 0 64 1141 186 1169 0 0 876	E				
	TIME FOR PRE-P	•						D11 OCTAL	SECONE	os		
	STORAGE AVAILAB				9 DECIMAI O DECIMAI							

NORMAL TERMINATION BY PRE-PROCESSOR

THERMAL RADIATION ANALYSIS SYSTEM

TRASYS 11

AAAAAAA AAAAAAAA AAAAAAAAAA AAA AAA AAA AAA AAAAAAAAAA AAA AAA AAA AAA AAA AAA AAAAA AAAAA

655 555 55 655 556 55 656 655 666 65 657 666 65 658 6666 65 668 6666 65 668 6666 65

555555555

555555555

BRBEESSOR EXECUTION

Version: Modification ... Ul2E11 Modification bate 051079

H - 3/1/2

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DATE 051279 TIME 121457

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

MODEL = SAMP	LE CON	FIG=CASE	STEP≃1		SA	MPLE CASE 6	- FFCAL	NFFCAL COMPARISON RUN
PROCESSING	OPERA	TIONS DAT	A					THE COMPARTSON ROW
SEQUENCE	NODE	BCS	AREA	ALPH	EMISS	SURF. TYPE	ACTIVE	COMMENTS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1 2 3 4 11 12 13 14 5 15 21 22 23 24 25	BOXINR BOXINR BOXINR BOXINL BOXINL BOXINL BOXINL LIDINR LIDINR BOXOUT BOXOUT BOXOUT BOXOUT	1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 2.06040 2.06040 1.04040 2.06640 1.04040	.900 .900 .900 .900 .900 .900 .900 .900	.900 .900 .900 .900 .900 .900 .900 .900	RECTANGLE	BOTTOM BOTTOM TOP TOP BOTTOM TOP TOP BOTTOM BOTTOM TOP TOP TOP	INNER RIGHT FRONT INNER RIGHT SIDE INNER RIGHT BACK INNER RIGHT BOTTOM INNER RIGHT FRONT INNER RIGHT SIDE INNER RIGHT BACK INNER RIGHT BOTTOM INNER RIGHT BOTTOM INNER RIGHT LID INNER LEFT LID CUTER SURFACES OUTER SURFACES OUTER SURFACES OUTER SURFACES OUTER SURFACES
	26	LIDOUT	2.06040	.200	.900	RECTANGLE	TOP	DUTER SURFACE OF LID

DATE 051279 TIME 121506

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAG EXEG 8 VERSION

page

2

MODEL=SAMPLE CONFIG=GASE6 STEP=1 FORM FACTOR CALCULATION LINK: SAMPLE GASE 6 = FFGAL/NFFGAL COMPARISON RUN

FORM FACTORS AND COMBINED FORM FACTORS = USER INPUT AND DEFAULT PARAMETERS

FOR	M FACTORS	AND COMBINED	FURM FAGIGAS OSEN EN S	options
VARIABLE NAME	GURRENT VALUE	DEFAULT	DEFINITION	
FFAGG FFAGGS FFMIN FFNGSH +FFNGH FFRATL FERME	.0560 .1000 .1=05 SHAD PUND YES .0 CORR	.0500 .1000 1.06=06 SHAD NO YES 15:0	ORIENTATION AGGURAGY PARAMETER SHADOWING AGGURAGY PARAMETER PARAMETER TO ELIMINATE SMALL FORM FAGTORS OVER RIDE SHADOWING PARAMETER PARAMETER TO PUNCH FORM FAGTORS FLAG FOR GOMPREHENSIVE FF AND GM PRINT RATIO FOR USING SUB-NODE TEG 4NIQUE FLAG FOR GOMBINING FORM FAGTORS	N/A N/A N/A (SHAD,NOSH) (YES,NO) (YES,NO,FF,GM,RB) N/A (YES,NO,AUTO,CORR)
FECMO	UUNK		=	

^{+ =} FFFNGH WILL DEFAULT TO = YES = ON GALGULATED VALUES IF THE = RSO = FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

DATE 051279 TIME 121507 THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

PAGE

MODEL=SAMPLE CONFIG=CASE6 STEP=1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

SEQUENCE	NODE	AREA	ALPH	EMISS	
1	1	1.00000	.900	.900	
2	2	1.00000	.900	.900	
3	3	1.00000	.900	.900	
4	4	1.00000	.900	.900	
5	11	1.00000	.900	.900	
6	12	1.00000	.900	.900	
7	13	1.00000	.900	.900	
8	14	1.00000	.900	.900	
9	5	1.00000	.900	.900	
10	15	1.00000	.900	.900	
.11	21	2.06040	.200	.900	
12	22	2.06040	.200	.900	
13	23	1.04040	.200	.900	
14	24	2.06040	.200	.900	
15	25	1.04040	.200	.900	
16	26	2.06040	.200	.900	

NUMBER OF NODES # 16 NUMBER OF SURFACES = 10

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

MODEL=SAMPLE CONFIG=CASE6 STEP=1 FORM FACTOR CALCULATION LINK.

DATE 051279 TIME 124240

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED) (R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

	(9.99999 -100104/6	• • • • • • • • • • • • • • • • • • • •				SHAD. IR	SHAD.SOL	CP TIME	NEI	NEU
NODE I	NODE J COMPUTATION	FIR(I,J) FIR(J,I) W/SHAD W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF(I,J) WO/SHAD	FACTOR	FACTOR	(SEC)		
5 15 21 22 23 24 25 26	FF SUM = .5505 FF SUM = .0000	ROW CP TIME =	.089 .033 .029 .023 .023 .018 .016							

DATE 051279 PAGE 24

DATE 051279 TIME 124243

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

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MODEL=SAMPLE CONFIG=CASE6 STEP=1 FORM FACTOR CALCULATION LINK.

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

NODE I- FF SU	M NODE I- FF SUM	NODE I- FF SUM	NODE I - FF SUM	NODE I- FF SUM	NODE I- FF SUM
1969 13837 23000	8 149007	38378 55505 250000	49007 155505 250000	119690 210000	129203 220000

TOTAL TIME FOR FORM FACTOR SEGMENT 590.099

TOTAL TIME SINCE START OF RUN 632.816

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THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

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MODEL=SAMPLE CONFIG=CASE6B STEP=2

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

EQUENCE	OPERATIONS DA	AREA	ALPH	EMISS	SURF. TYPE	ACTIVE	COMMENTS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1 BOXINR 2 BOXINR 3 BOXINR 4 BOXINL 12 BOXINL 13 BOXINL 14 BOXINL 15 LIDINR 15 LIDINR 21 BOXOUT 22 BOXOUT 23 BOXOUT 24 BOXOUT 25 BOXOUT 26 LIDOUT	1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 1.00000 2.06040 2.06040 1.04040 2.06040	.900 .900 .900 .900 .900 .900 .900 .200 .2		RECTANGLE	BOTTOM BOTTOM TOP BOTTOM BOTTOM TOP TOP BOTTOM BOTTOM TOP TOP TOP TOP TOP TOP TOP	INNER RIGHT FRONT INNER RIGHT SIDE INNER RIGHT BACK INNER RIGHT BOTTOM INNER RIGHT FRONT INNER RIGHT SIDE INNER RIGHT BOTTOM INNER RIGHT BOTTOM INNER RIGHT BOTTOM INNER RIGHT LID INNER LEFT LID OUTER SURFACES

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MODEL=SAMPLE CONFIG=CASE6B STEP=2 SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN FORM FACTOR CALCULATION LINK USING UNIT SPHERE LOGIC.

FORM FACTORS AND COMBINED FORM FACTORS - USER INPUT AND DEFAULT PARAMETERS

VARIABLE	CURR ENT	DEFAULT	DEFINITION	OPTIONS
NAME	VALUE			
FFACC	.0500	.0500	ORIENTATION ACCURACY PARAMETER	N/A
FFACCS	.1000	.1000	SHADOWING ACCURACY PARAMETER	N/A
FFMIN	.1-05	1.0E-06	PARAMETER TO ELIMINATE SMALL FORM FACTORS	N/A
FFNOSH	SHAD	SHAD	OVER RIDE SHADOWING PARAMETER	(SHAD, NOSH)
+FFPNCH	PUND	NO	PARAMETER TO PUNCH FORM FACTORS	(YES,NO)
FFPRNT	YES	YES	FLAG FOR COMPREHENSIVE FF AND CM PRINT	(YES,NO,FF,CM,RB)
FFRATL	15.0	15.0	RATIO FOR USING SUB-NODE TECHNIQUE	N/A
FFCMB	CORR	CORR	FLAG FOR COMBINING FORM FACTORS	(YES.NO.AUTO.CORR)

^{+ -}FFPNCH WILL DEFAULT TO -YES- ON CALCULATED VALUES IF THE -RSO- FILE IS NOT SPECIFIED IN THE OPTIONS DATA BLOCK

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SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN MODEL=SAMPLE CONFIG=CASE6B STEP=2 FORM FACTOR CALCULATION LINK USING UNIT SPHERE LOGIC.

SEQUENCE	NODE	AREA	ALPH	EMISS
1 2 3	1 2 3	1.00000 1.00000 1.00000	.900 .900 .900	.900 .900
4 5	4 11	1.00000	.900 .900	.900 .900
6 7	12 13	1.00000 1.00000	.900	.900
8 9	14 5	1.00000	.900 .900	.900 .900
10 11	15 21	1.00000 2.06040 2.06040	.200	.900
12 13 14	22 23 24	1.04040	.200	.900
15 16	25 26	1.04040	.200	.900

NUMBER OF NODES = 16 NUMBER OF SURFACES = 10

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DATE 051279 TIME 124300

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

MODEL=SAMPLE CONFIG=CASE6B STEP=2 SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN FORM FACTOR CALCULATION LINK USING UNIT SPHERE LOGIC.

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI, RTI, OR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE I	NODE J	COMPUTATION	FIR(I,J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF(I,J) WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ
1	2	CAL	.199743	.199743	.199743	.199743	.199743	1.000000	1.000000	2.334	25	25
1	3	CAL	.201046	.201046	.201046	.201046		1.000000	1.000000	2.305	25	25
1	4	CAL	.199743	.199743	.199743	.139743		1.000000	1.000000	2.227	25	25
1	12	CAL	.032714	.032714	.032714	.032714		1.000000	1.000000	2.413	25	25
1	13	CAL	.086057	.086057	.086057	.036057		1.000000	1.000000	2.421	25	25
1	14	CAL	.040484	.040484	.040484	.040484	_	1.000000	1.000000	2.418	25	25
1	5	CAL	.136575	.136575	. 136575	.136575	_	1.000000	1.000000	2.329	25	25
1	15	CAL	.055966	.055966	.055966	.055966	.055966	1.000000	1.000000	2.436	25	25
1	FF SUM	= .9523	ROW CP T	IME = 2	0.139					• • • • • • • • • • • • • • • • • • • •		
2	3	CAL	.199743	.199743	.199743	.199743	.199743	1.000000	1.000000	2.430	25	25
2	4	CAL	.199743	. 199743	.199743	.139743	.199743	1.000000	1.000000	2.320	25	25
2	11	CAL	.033070	.033070	.033070	.033070	.033070	1.000000	1.000000	2.429	25	25
2	12	CAL	.068764	.068764	.068764	.058764	.068764	1.000000	1.000000	2.385	25	25
2	13	CAL	.033070	.033070	.033070	.033070	.033070	1.000000	1.000000	2.427	25	25
2	14	CAL	.033070	.033070	.033070	.033070	.033070	1.000000	1.000000	2.402	25	25
2	5	CAL	.095374	.095374	.095374	.095374	.095374	1.000000	1.000000	2.134	25	25
2	15	CAL	.034365	.034365	.034365	.034365	.034365	1.000000	1.000000	2.429	25	25
2	FF SUM	•	ROW CP T	-	9.990					•		
3	. 4	CAL	.199743	.199743	.199743	.199743	.199743	1.000000	1.000000	2.325	25	25
3	11	CAL	.086057	.086057	.086057	.036057	.086057	1.000000	1.000000	2.431	25	25
3	12	CAL	.032714	.032714	.032714	.032714	.032714	1.000000	1.000000	2.435	25	25
3	14	CAL	.040484	.040484	.040484	.040484	.040484	1.000000	1.000000	2.440	25	25
3	5	CAL	.047775	.047775	.047775	.047775	.047775	1.000000	1.000000	2.311	25	25
3	15	CAL	.011648	.011648	.011648	.011648	.011648	1.000000	1.000000	2.441	25	25
3	FF SUM		ROW CP T	_	7.744							
4	11	CAL	.040484	.040484	.040484	.040484		1.000000	1.000000	2.433	25	25
4	12	CAL	.032714	.032714	.032714	.032714		1.000000	1.000000	2.402	25	25
4	13	CAL	.040484	.040484	.040484	.040484	_	1.000000	1.000000	2.439	25	25
4	5	CAL	.107821	.107821	.107821	.107821	.107821	1.000000	1.000000	2.311	25	25

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MODEL=SAMPLE CONFIG=CASE6 STEP=1

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SAMPLE CASE 6 - FFCAL/NFCAL COMPARISON RUN

FORM FACTOR CALCULATION LINK USING UNIT SPHERE LOGIC.

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED) (R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI. RTI. CR CARD INPUT)

(9.99999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE I	NODE J COMPUTATION	FIR(I.J) FIR(J.I) W/SHAD W/SHAD	FSOL(I,J) W/SHAD	FSOL(J.I) W/SHAD	FF(I.J) WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	ИЕЛ
4	15 CAL	.056891 .056891	.056891	.056891	.056891	1.000000	1.000000	2.520	25	25
4 11 11 11	FF SUM = .8776 12 EQUIV 13 EQUIV 14 EQUIV 5 CAL	ROW CP TIME = 1 .199743 .199743 .201046 .201046 .199743 .199743 .055966 .055966 .136574 .136574	2.808 .199743 .201046 .199743 .055966 .136574	.199743 .201046 .199743 .055966 .136574	.000000 .000000 .055966	1.000000 1.000000 1.000000 1.000000	1.000000 1.000000 1.000000 1.000000	.007 .008 .007 2.549 2.413	0 0 0 25 25	0 0 25 25
11 11 12 12 12	15 CAL FF SUM = .9527 13 EQUIV 14 EQUIV 5 CAL 15 CAL	ROW CP TIME = .199743 .199743 .199743 .034365 .034365 .095374	5.108 .199743 .199743 .034365 .095374	.199743 .199743 .034365 .095374	.000000 .034365	1.000000 1.000000 1.000000 1.000000	1.000000 1.000000 1.000000 1.000000	.008 .008 2.516 2.197	0 0 25 25	0 0 25 25
12 12 13 13	FF SUM = .8959 14 EQUIV 5 CAL 15 CAL	ROW CP TIME = .199743 .199743 .011648 .011648 .047775	4.837 .199743 .011648 .047775	.199743 .011648 .047775	.011648	1.000000 1.000000 1.000000	1.000000 1.000000 1.000000	.007 2.501 2.543	0 25 25	0 25 25
13 13 14 14	FF SUM = .8196 5 CAL 15 CAL FF SUM = .8780	ROW CP TIME = .056891 .056891 .107821 .107821 ROW CP TIME =	5.148 .056891 .107821 5.012	.056891 .107821	.056891 .107821	1.000000	1.000000	2.533 2.403	25 25	25 25

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DATE 051879 TIME 150652

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

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MODEL=SAMPLE CONFIG=CASE6 STEP=1

SAMPLE CASE 6 - FFCAL/NFCAL COMPARISON RUN

FORM FACTOR CALCULATION LINK USING UNIT SPHERE LOGIC.

(* -INDICATES NODE PAIR HAS BEEN SUBDIVIDED)

(R -INDICATES FF CALCULATED FROM NODE J TO NODE I BECAUSE NODE J HAS SMALLEST AREA)

(UN-INDICATES UNKNOWN CALCULATION MODE BECAUES OF RSI. RTI. OR CARD INPUT)

(9.999999 -INDICATES UNKNOWN DATA VALUE BECAUSE OF INSUFFICIENT CARD INPUT)

NODE I	NOD	ΕJ	COMPUTATION	FIR(I.J) W/SHAD	FIR(J,I) W/SHAD	FSOL(I,J) W/SHAD	FSOL(J,I) W/SHAD	FF(I.J) WO/SHAD	SHAD.IR FACTOR	SHAD.SOL FACTOR	CP TIME (SEC)	NEI	NEJ
5	FF	SUM	= .5464	ROW CP T	TIME =	.110							
15	FF	SUM	= ,5464	ROW CP T	IME =	.033							
21	FF	SUM	= .0000	ROW CP T	IME =	.028							
22	FF	SUM	= .0000	ROW CP T	IME =	.024							
23	FF	SUM	= .0000	ROW CP T	IME =	.021							
24	FF	SUM	= .0000	ROW CP T	IME =	.018							
25	FF	SUM	= .0000	ROW CP T	IME =	.016							
26	FF	SUM	= .0000	ROW CP T	IME =	.015							

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DATE 051279 TIME 124646

THERMAL RADIATION ANALYSIS SYSTEM (TRASYS) UNIVAC EXEC 8 VERSION

MODEL=SAMPLE CONFIG=CASE6B STEP=2

SAMPLE CASE 6 - FFCAL/NFFCAL COMPARISON RUN

FORM FACTOR CALCULATION LINK USING UNIT SPHERE LOGIC.

SUMMARY OF FORM FACTOR SUMS FOR ALL NODES

	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM	NODE I- FF SUM
NODE I- FF SUM 19523 138196 230000	28969 148780 240000	38192 55464 250000	48776 155464 250000	119527 210000	128959 220000

114.467 TOTAL TIME FOR FORM FACTOR SEGMENT

TOTAL TIME SINCE START OF RUN

748.063

NORMAL TERMINATION BY PROCESSOR

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